

Rock Products

DEVOTED TO THE PRODUCTION
AND SALE OF ROCK AND CLAY PRODUCTS.

Vol. III.

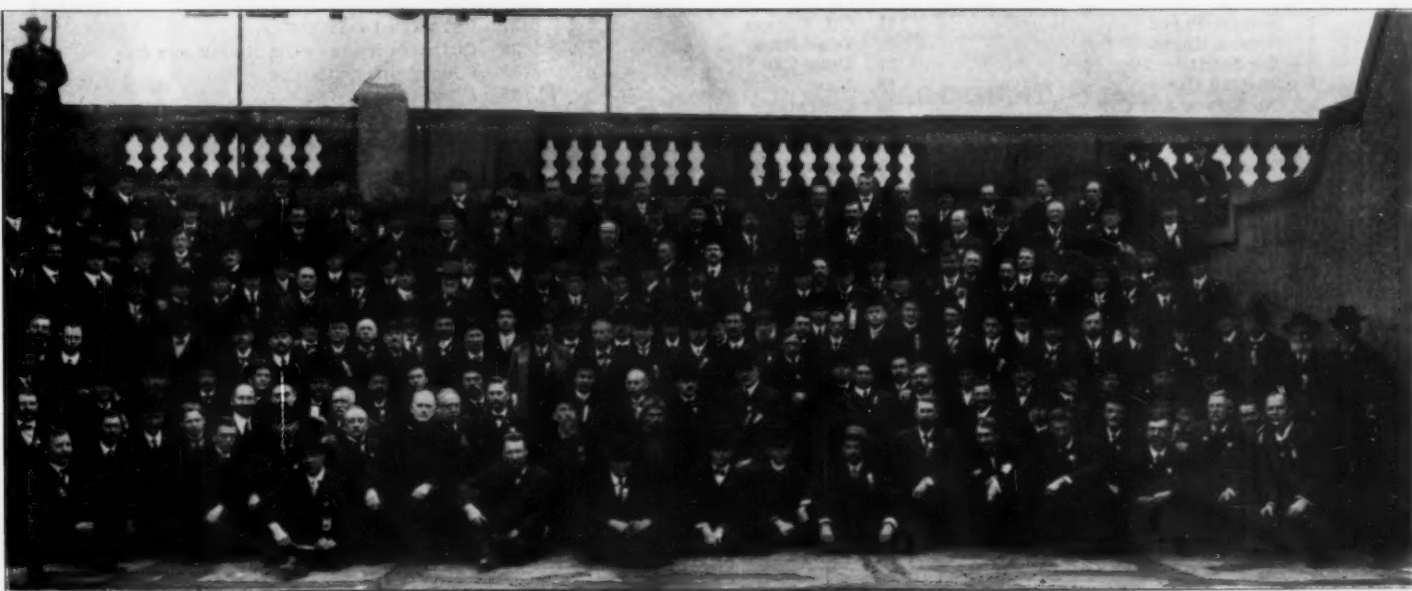
LOUISVILLE, KY., FEBRUARY, 1905.

No. 11.



THE CUT STONE CONTRACTORS CONVENTION IN NEW YORK.

A picture of fifty-four stone men taken on top of the Hotel Astor, with the new Times Building as a background, starting on the left of the front row with R. E. Harrsch, Chicago, the end man, the parties are as follows: Henry Furst, W. S. Callen, Samuel Holmes, George Dugan, John A. Rowe, James W. Melville, Reese Lindsay, President Isele, Henry Struble, W. L. Kerber, D. Rily, Alexander King, Secretary John Mawer, John Ittenbach, George K. Beddoc. Second row beginning on the left—Howard L. Woody, Gilbert Brown, T. C. Diener, Chas. A. Pfeiffer, E. Heldmaier, Mr. Hastings, Albert Neukom, D. M. Andrew, Adam Groth, F. B. Parker, J. P. Falt, A. F. Mischie, E. T. Lanham, John E. Smith, E. F. Giberson, Chas. Fanning, C. W. McCormick, P. K. Stephenson, W. R. Logan. Third row beginning on the left—Frank Ittenbach, sitting on the railing, Albert Schall, E. W. Shoemaker, Edw. Peter, Paul E. Searles, C. C. Ingalls, Geo. Parker, H. F. Groetsmacher, Chas. Dallmann, George Hogg, Wm. Morrison, Albert J. Ward, E. H. Defebaugh, H. C. Whitaker, F. H. Barr, J. E. Billingsley, H. M. Terrell, Edward Spurr, A. Sutermeister.



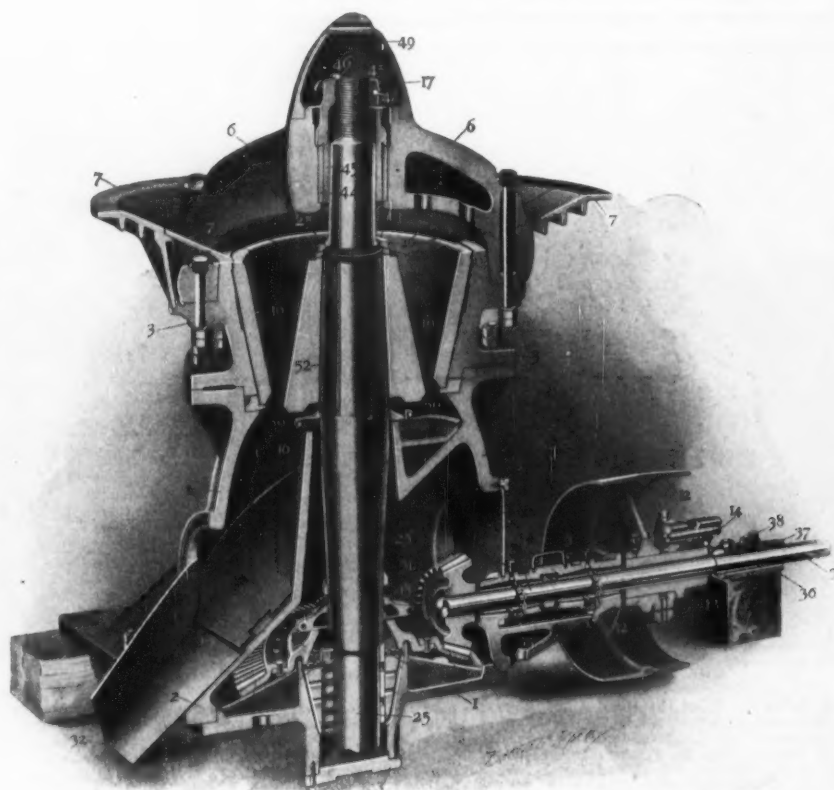
A GROUP OF CEMENT USERS AT THE INDIANAPOLIS CONVENTION.

Allis-Chalmers Co

MILWAUKEE WIS USA

Anatomy of Style "K" Gates Breaker

CHAPTER 1

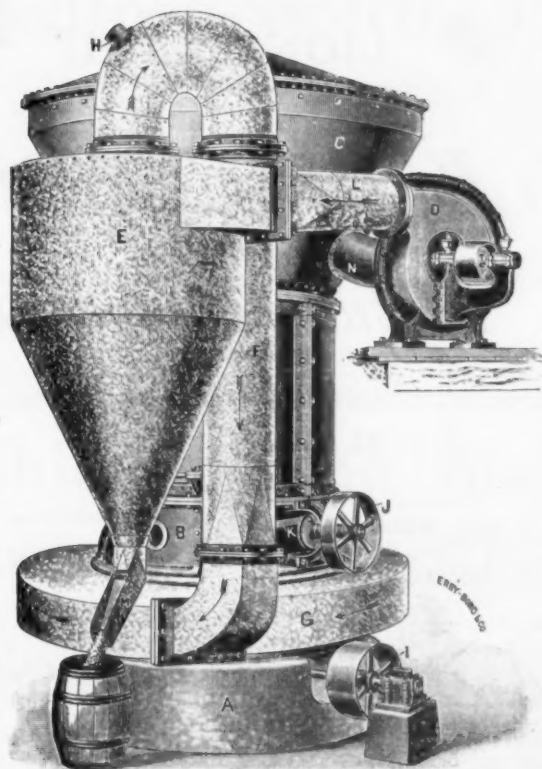


- | | | |
|-----------------------|--------------------------|----------------------------------------|
| 1 BOTTOM PLATE | 15 OIL BONNET | 37 OUTBOARD BEARING CAP |
| 2 BOTTOM SHELL | 16 DUST RING | 38 OUTBOARD BEARING OIL NIPPLE AND CAP |
| 3 TOP SHELL | 17 DUST CAP | 39 COUNTERSHAFT COLLAR |
| 4 BEARING CAP | 18 HEAD | 40 DUST DOOR |
| 5 OIL NIPPLE AND CAP | 19 CONCAVES | 43 BOTTOM PLATE COVER |
| 6 SPIDER | 22 WEARING PLATES | 44 SPIDER BUSHING |
| 7 HOPPER | 23 UPPER WEARING PLATE | 45 SHAFT BUSHING |
| 8 ECCENTRIC | 25 MAIN SHAFT | 46 GIB KEY FOR BUSHING |
| 9 BEVEL WHEEL | 26 UPPER RING NUT | 47 BOLT FOR BUSHING |
| 10 BRASS WEARING RING | 27 LOWER RING NUT | 49 OIL PLUG IN DUST CAP |
| 11 BEVEL PINION | 31 COUNTERSHAFT | 50 CONCAVE SUPPORTING RING |
| 12 BAND WHEEL | 32 SPOUT | 51 MAIN SHAFT COLLAR |
| 13 BREAK HUB | 33 OILING CHAIN | 52 ZINC KEYS |
| 14 BREAK PIN | 36 OUTBOARD BEARING BASE | |

ELECTRICAL DEPARTMENT
The Bullock Electric Mfg Co
 CINCINNATI OHIO

Canadian representatives, Allis-Chalmers-Bullock, Ltd., Montreal

Tell 'em you saw it in ROCK PRODUCTS.



The Raymond Roller Mill

WITH
Air Separator
GRINDS EXCEEDINGLY FINE AND IS
Absolutely Dustless
IN OPERATION

One mill like cut grinds five tons per hour, to one hundred mesh fineness, of coal, lime, limestone, etc. We can refer you to the largest concerns in the world for references.

Special Separators for hydrated lime, cement or any material.

MANUFACTURED SOLELY BY

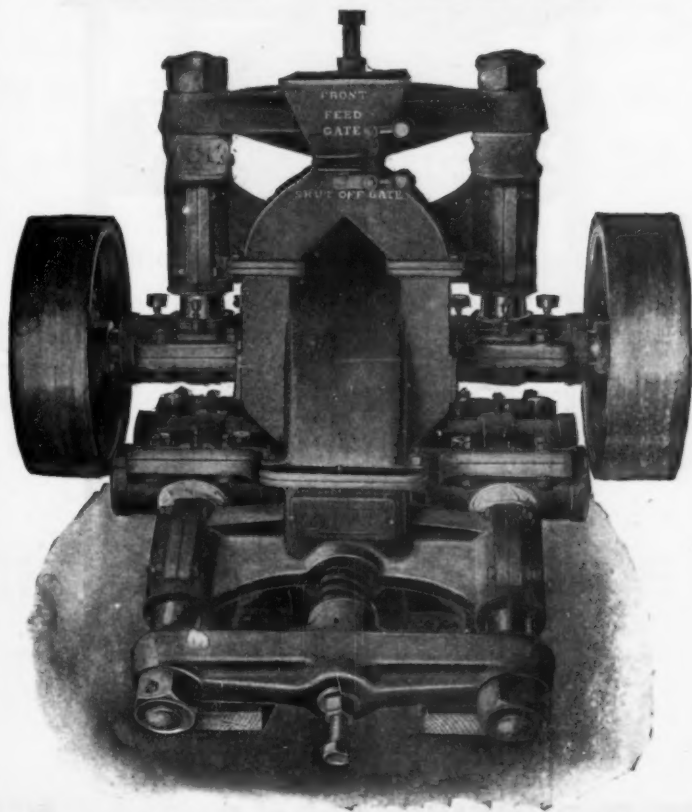
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THE KENT PULVERIZER



Takes one inch feed. Grinds to any fineness
from 10 to 200 mesh.

GRINDS PER HOUR WITH LESS THAN 25 H. P.

CEMENT CLINKER,	40 bbls.	to 98%	20 Mesh.
CEMENT CLINKER,	12 "	" "	100 "
LIMESTONE,	2½ tons	" "	200 "
LIME,	4 "	" "	100 "
ROSENDALE CEMENT,	43 bbls.	" 90%	50 "
QUARTZ TRAP-ROCK,	4 tons	" "	40 "

You can easily figure from this what a
Kent Mill would save for you.

W. J. BELL, Esq. Supt.
NEWAYGO PORTLAND CEMENT CO.,
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Says:—Four KENT MILLS are driven by one 75 H. P. motor.

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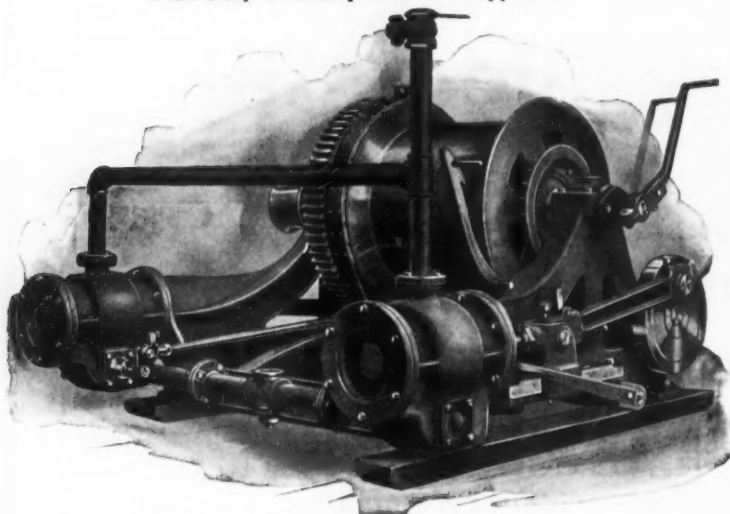
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The Quincy Mine and Quarry Hoist.

No Question About Its Merit or Efficiency.
You Decide Those Points Yourself.
Sent Subject to Inspection and Approval.



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Cylinders 8x10, Drum 14x20	\$496.00
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These prices are cash without discount, but cover the complete machine f. o. b. Quincy, Ill., or Chicago. You have your choice of the Reversible Hoist or Friction Drum Hoist. We have both for prompt shipment. For Quarry work or for Mine duty you can't beat 'em. Strong, quick, simple, modern. Shall I ship you one?

WILLIS SHAW,

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TRADE
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Electrical Fuzes
and
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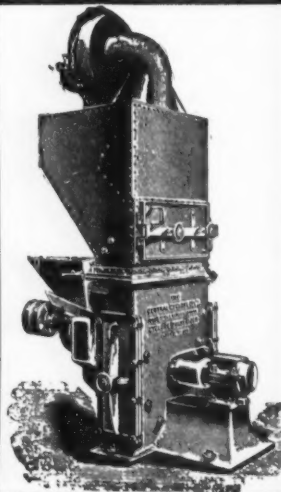
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PULVERIZER.



STRAKER'S PATENT.

AIR SEPARATION—The product can be made of any desired fineness without sieving.

DUSTLESS in operation.

OUTPUT per H. P. per hour of the Cyclone Mills is much larger than that of any other mills.

We build SCREEN SEPARATION MILLS too.

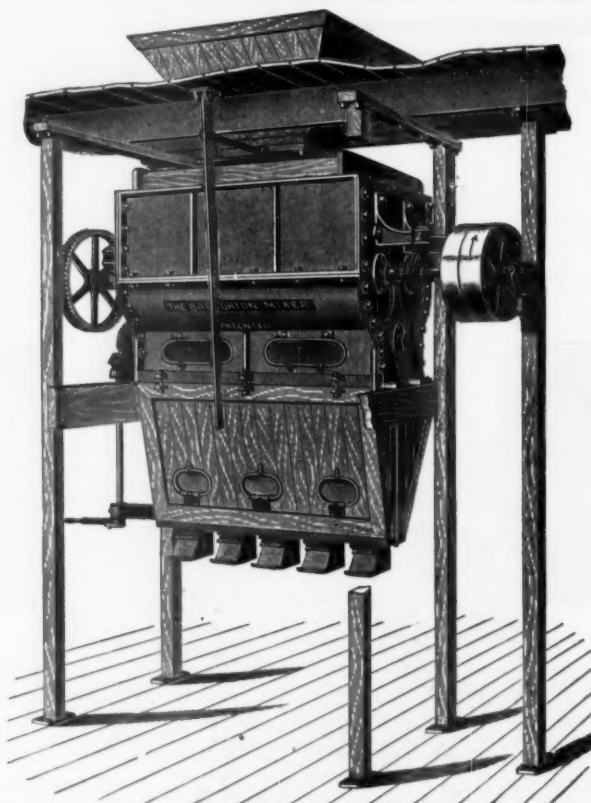
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Manufacturers for U. S., Canada & Mexico.

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The most thorough and efficient
Mixers of Plaster, Cement and
Dry Materials. Send for Circular.

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We are producers of Buff and Blue

AUDITORIUM HOTEL AND ANNEX, CHICAGO.

Bedford Oolitic Limestone,

Sawed, Turned and Machine Dressed.

OOLITIC STONE CO. OF INDIANA.

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AND THE NORTON-REED STONE CO.

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Anything you want in

Oolitic Limestone

Rough, Sawed,
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GET OUR QUOTATIONS ON ALL JOBS.

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We are in a position to furnish choice Buff Blocks or Sawed Stone on short notice and at best prices. Address all communications to

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Bush Hammers, Tooth Axes,
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Send for Special Rock Products Offer.

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No. 1 Masonry Stone.

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FARMERS, KY.

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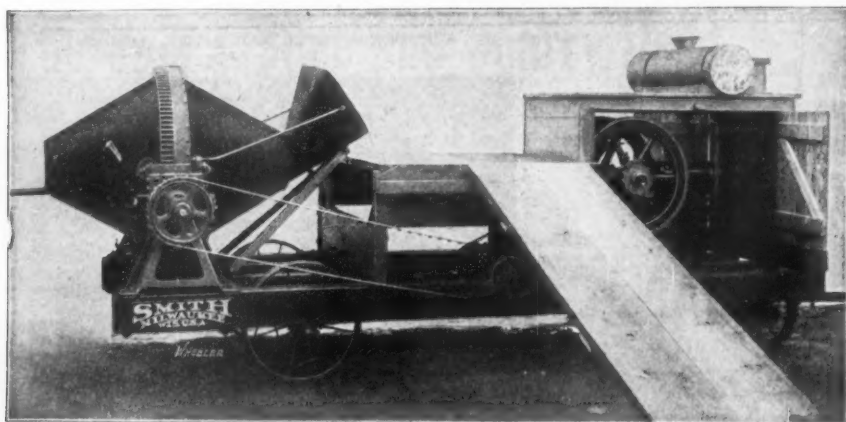
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SAND

Crushed Sand Stone for Concrete.
Sand, 98 per cent. Silica, suitable for core work, Iron and Steel
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900 in use; 6 sizes; any combination of power and mounting. Just the thing for

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It is not the color of the Strand that makes Monarch Rope so superior, but the material it is made out of. The Whyte strand merely ensures you getting the right rope.

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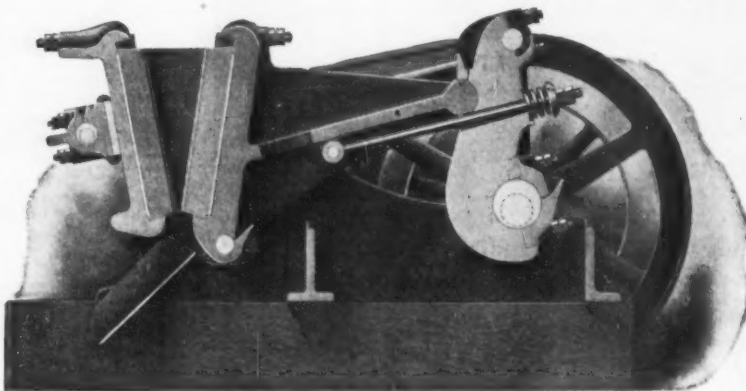
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There is a Good Profit in Crushed Stone

THE NATIONAL IS THE NEW IDEA. It is built low down, consequently when decked over is **Easy to feed and safe to operate.** Steel side arms take the crushing strain. Safety devices prevent breakage. Lightest weight and easiest running crusher ever built.



SECTIONAL VIEW OF JAW CRUSHER.

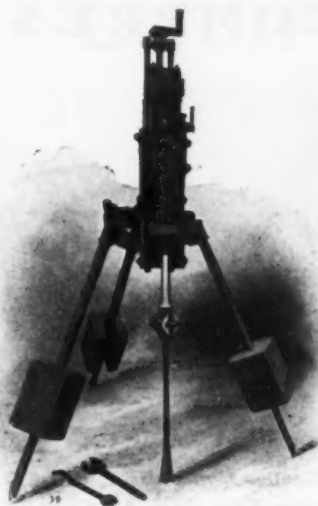
The National Solid Frame Rock Crusher, built in four sizes, 8 x 15 to 11 x 22 Jaw openings. 10 Tons to 30 Tons hourly capacities.

We can design an inexpensive plant for you, which will yield a **Steady Income** from the material which would otherwise be wasted. Crushed stone is being used more every day.

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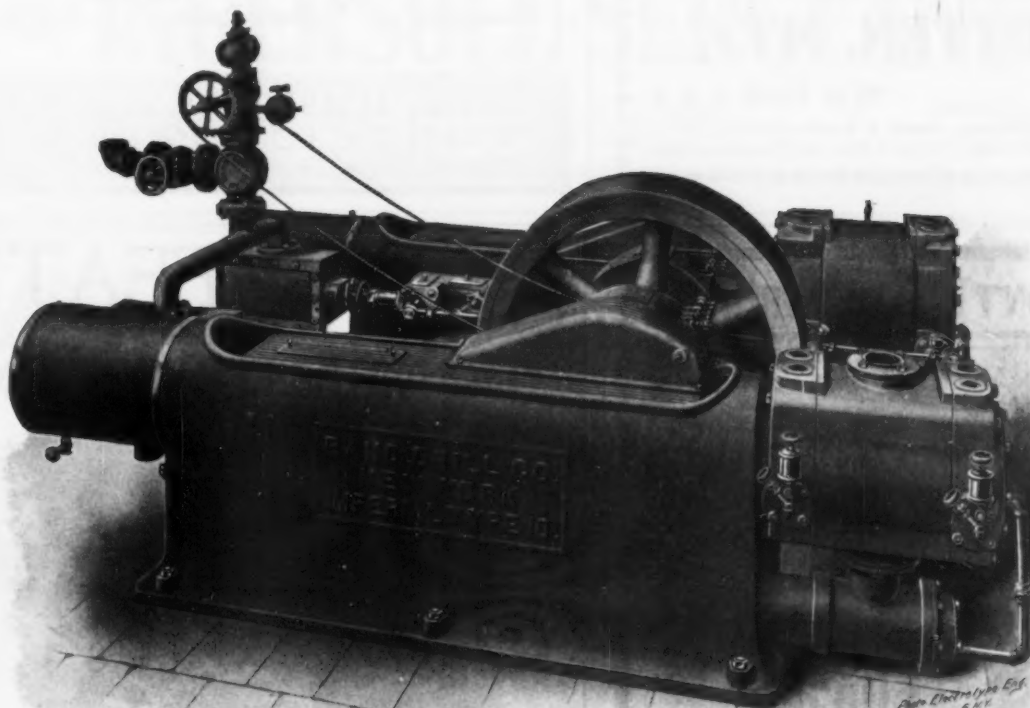
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CONCERNING THE
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1. Muds well.
2. Balanced valve.
3. Positive rotation.

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OUR AIR COMPRESSORS are built for every variety of service and of all necessary types from 3 to 1,000 horse-power or larger, for high or low air pressure and for gases. They are fitted with simple or compound air cylinders with simple or compound Corliss engines, simple or compound Meyer engines, electric motors by belt or silent chain or direct connected or for simple belt or rope drive. Complete automatic regulators of recent designs for controlling the operation of the compressors provided according to requirements. *Send for "Air Power."*

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Latest Improved KOTTEN Pneumatic Tool.

This tool has absolutely but three parts, Cylinder, Piston and Head. No Latch Pins, Springs or Locks. All parts properly tempered. No chance for wear or clogging and derangement of air ports.

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COMPLETE PNEUMATIC PLANTS.

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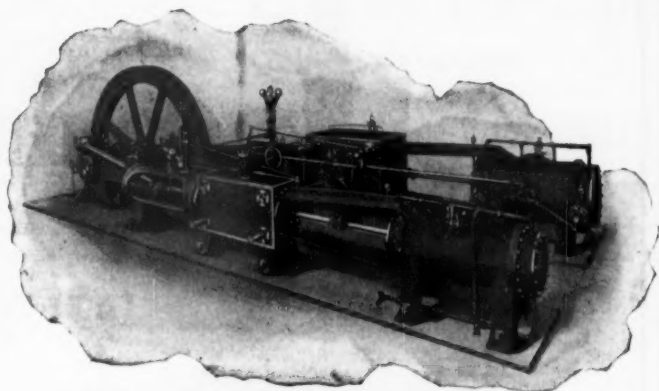
NEW YORK, U. S. A.

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Steam, Two-Stage Air Cylinders.

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Rock Drills

Quarry Machinery



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with some old fashioned rattle-trap of a machine that is all worn out and shakes the earth because of its lost motion. Buy an up-to-date machine that runs as smooth as grease itself. We have them.

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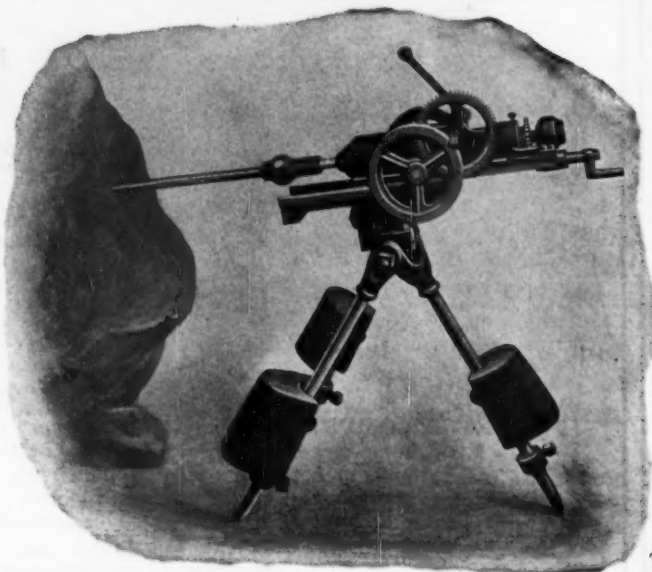
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Jackson Hand Power Rock Drill



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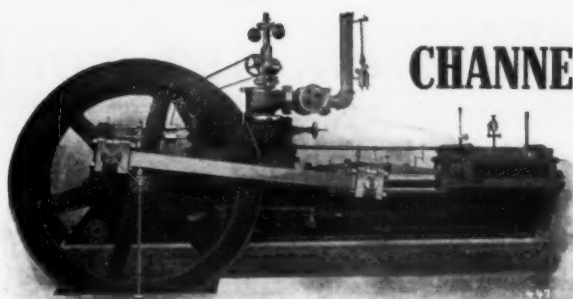
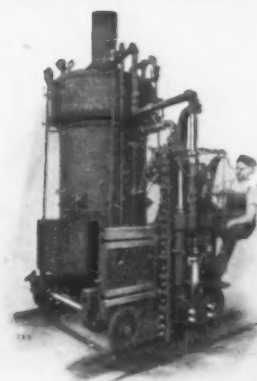
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CHANNELERS AND ROCK DRILLS
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FOR EVERY SERVICE.

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Dallett Plug Drills *Carving Tools* *Surfacing Machines*

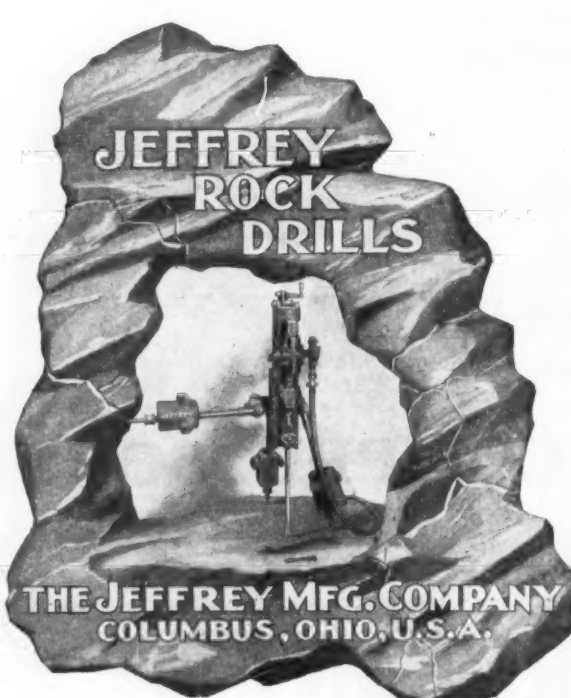
are the tools and machines with which your properties will eventually be equipped, because you can not afford to install or continue using apparatus that will not permit the greatest possible output per man per hour.

Dallett Tools always demonstrate their superiority when in competition with the best of other makes.—May we tell you why?

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THE JEFFREY MFG. COMPANY
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and Punches.**



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"Wood" Rock Drills

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"Stay With You."

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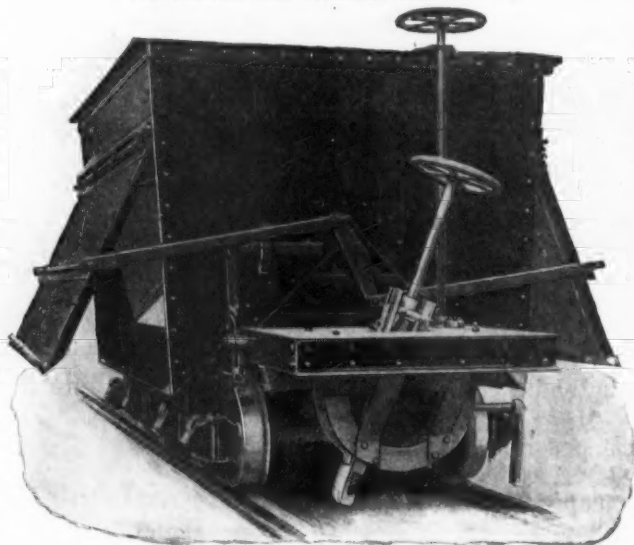
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For Quarries, Mines, Cement Plants,
Contractors and General Use. : :



No. 385—Steel Gable Bottom Car, showing grip attachment. Built for Government Coal Handling Plant at Narragansett Bay, R. I.

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LOUISVILLE, KENTUCKY POINTS AND ST. LOUIS.

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Granite Stain Eradicator.

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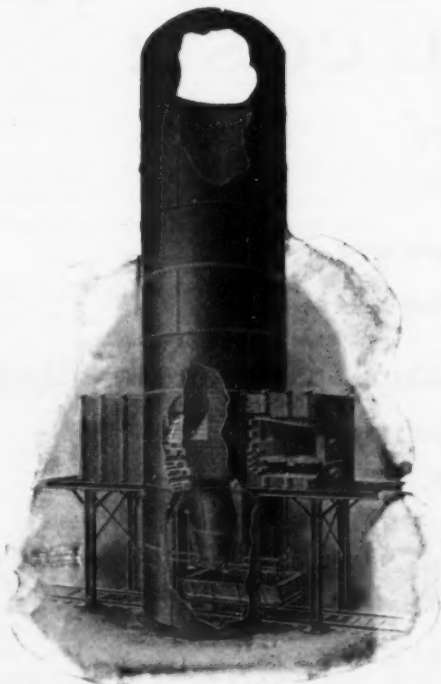
NATHAN C. HARRISON, General Agent.

Satisfaction Guaranteed

HARRISON SUPPLY COMPANY, 32-34 INDIA WHARF, BOSTON, MASS.

Keystone Continuous Burning Lime Kiln

BROOMELLS' PATENT.



Single kiln as it appears when erected ready for charging platform and building. This cut shows the interior of the kiln. Note the steel deflection plates at the top to protect the brick wall. Note the handy position of car to receive the lime.

Built in the most substantial manner from heavy steel plates can be set singly or in a battery; easily set up by unskilled labor; no foundations required above the ground level, large storing space for rock at the top.

Either wood, bituminous coal, producer gas or natural gas can be used as fuel.

Manufactured by

Broomell, Schmidt & Steacy Co.

YORK, PENNSYLVANIA.

Saw Blades

Carefully Straightened and Cut Square and True. Ordinary Sizes Constantly on Hand.

WEST LEECHBURG STEEL CO.

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Stacks! Tanks! Kilns!

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Steel Plate Work.

THE WILLIAMS PATENT CRUSHER AND PULVERIZER CO.

MANUFACTURE

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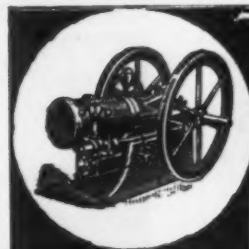
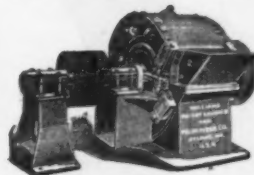
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DRYING MACHINERY AND PRESSES

Which will dry more Clay, Coal, Gravel, Sand, Shale,
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 Ask for catalogue, testimonials, etc.

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Save 25 to 60 per cent in fuel by
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ELDRED PROCESS

for the regulation of combustion and the control of temperature and volume of flame.

In constant use in many plants throughout the country, making a
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Successors to BYRON ELDRED, exclusive owners of the Eldred Process
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BRICK MACHINERY.



The Best Machinery for
 the manufacture of the
 best product. The quality
 of our machinery insures
 the quality of your brick
 and freedom from repairs.
 Machinery for the manu-
 facture of clay products
 by all processes.

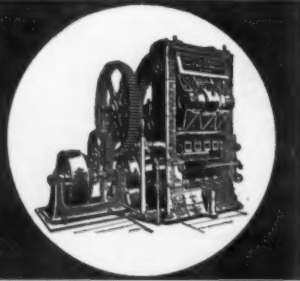
THE AMERICAN CLAY-WORKING MACHINERY CO., Bucyrus, Ohio.

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No Artificial Stone Plant is complete unless
 they manufacture the Parry Patent Burial Vault.
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THE FRANCIS PUBLISHING CO.,
Publishers.

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A monthly trade journal devoted to the interests of the manufacturers and dealers in rock products and kindred lines, including Lime, Cement, Salt, Sand, Slate, Granite, Marble, Sandstone, Grindstones, Artificial Stone, Emery Stone, Quarries, Monuments, Manganese, Asphalt, Phosphates, Plaster, Terra Cotta, Roofing and Roofing Tile, Coal, Oil, Mineral Wool, Brick, etc.

The mission of ROCK PRODUCTS is to serve the trade in any and every honorable way possible, to promote better profits and make life more pleasant for those engaged in the business to which it caters. With this end in view, criticism is courted, and all are invited to use its columns to further ideas and suggestions for the good of the trade. The office, too, is at the service of the constituents of this paper: so when you want to buy or sell, or merely ask a question, write, and when you are in town, call and make it your headquarters.

"TELL 'EM YOU SAW IT IN ROCK PRODUCTS."

SUBSCRIPTION RATES, \$1.00 per annum, postpaid anywhere in the United States, Canada or Mexico; \$1.50 elsewhere in the Postal Union. Single copies, 10 cents.

ADVERTISING RATES will be furnished on application.

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THE FRANCIS PUBLISHING COMPANY,
431 W. Main Street, Louisville, Kentucky.

LOUISVILLE, KY., FEBRUARY, 1905.

Trade Associations.

The pages of this number of ROCK PRODUCTS are filled with the reports of conventions of the various associations representing the industries we serve. Not only in our lines especially has this come to be an age of associated effort, but in almost every line of manufacture the same condition is noticeable. Time was, and indeed not very long ago, when competitors in every line of activity were suspicious and jealous the one with the other, and no system was supposed to be so bad and unjust as that of a competing firm. It even went so far as to get into personalities to a degree, and competitors in business were seldom on good terms or for that matter on even speaking terms, as we say. In a very few years there has been a wonderful broadening of the angle of vision when it comes to viewing the rival concern, and we have found that there is something to be learned and a great deal of profit to be conserved by being comrades and working together for the advancement and profit of the industry as a whole. In this movement every fellow seems to want to give his share of help to the good cause, and the American trade association movement seems to be firmly established in nearly all lines. It is the broadening influence of the prodigious whole of the great industry as represented by the delegates assembled for counsel together and the open discussion of ways and means, methods and systems, directed by an earnest endeavor to find the best results, the most lasting and largest real returns for enterprise and effort, that has accomplished so much. This is the real cause of our incomparable position as world-leaders in the progress of civilization—the builders of better conditions for ourselves and those who shall come after us.

Province of the Trade Paper.

The trade paper is not a judge to decide the nice points of controversy upon any question of method or system, but it is the compendium for all the evidence from every possible source, and impartially to spread it before the trade for the separate decision and action of each member. Each concern can thus act upon the information in the light of its own experience, and local surroundings—in short, by independent selection; for each one knows what is best for him.

CEMENT will never be as cheap again as it was last season.

QUARRY OWNERS are preparing for a busy year. Let's make it a record-breaker for profits.

READ your trade paper and keep abreast with the men who lead in the business world to-day.

THE BUILDERS' Supply Association has produced several Ciceros. Yea, verily. Read the report.

OUT at the Pacific Coast the lime manufacturers are taking up hydration of their product for long-haul shipment.

HOLLOW concrete building blocks gain in popularity as the number of handsome structures cheap in cost increases.

SAND-LIME brick withstood a severe fire test recently at Little Rock in an actual conflagration. It comes out with flying colors.

IN line with all the other expansions that have been reported, don't overlook ROCK PRODUCTS with 125,000 interested readers in 1905.

HYDRATION increases the volume and weight of the original material besides the added value per pound. It is cumulative both ways.

CRUSHED stone people should prepare for a larger demand from the concrete operators than heretofore, the call is sure to break all records.

SAND-CEMENT brick require no burning, can be successfully colored with several different tints and are said to be cheaper than clay brick of equal quality.

THE question of adding a small proportion of hydrated lime in the composition of hollow building blocks has been favorably considered and tested out well.

ARCHITECTS are working overtime and good draughtsmen are a very scarce commodity these days. It augurs well for the cut stone contingent that their draughting rooms are busy also.

ONE of the brightest cement men in the business who attended one of the conventions said: "I am willing to contribute anything I know in exchange for what all the other fellows have to give out."

PAPERS before the several trades associations clearly establish the fact that the typical American business man is a scholar and a gentleman—old world standards to the contrary notwithstanding.

PROSPERITY in other lines is reflected on the business of the monument man. The annual statements from every section are gratifying, and indicate lots of money that can be well spent in the tender sentiment of tasteful memorials.

PLASTER operators have a right to be the most serene lot of fellows in all the building trades. No matter how much substituting for other materials there may be, every set of specifications calls for some kind of plaster, and usually the call is for the better and highest improved grades. More people are wanting the best now regardless of price than ever before.

FIRE brick of the best grades are having a great call these days. The retort, the kiln, the fire back and fire linings of every kind are contributing to the activity. All of the factories are behind with their orders, and working overtime.

KEEP in touch with your trade paper. An occasional letter to the editor will help you to think clearer and sharper. It is noticeable that the men who roll up the largest profits are those who get all the information going and use it.

SAND! sand!! sand!!! is the first requisite for the manufacture of every kind of artificial stone and plaster. The volume of consumption is increasing mightily, and yet there seems to be no limit to the supply, and fortunes are being made in sand.

GRANITE producers for monumental purposes have had a steady and healthy increase of demand—the kind of growth that counts up in a conservative way, while the call for building operations has been quite unprecedented—and far beyond the most rosy expectations.

REINFORCED concrete is growing in importance with wonderful rapidity. Success upon success is reported by the different systems, while inventions for cheapening false-work multiply. Some of the brightest minds in the business are working in this line and its further development is assured.

IN THESE days when quarrying is out of the question is found the best opportunity to consider all the needed improvements in equipment. Consult the advertising pages, they are brim full of valuable suggestions that mean money in the pocket of the progressive quarry man who heeds the message.

CUT stone contractors represent the ancient and aristocratic idea of construction, and for this reason they move only with dignity and precision as becomes their honored profession. The progress of their association will be the criterion to measure others by, even as they have been the standard for so many things in the past. Many things are compared as to cut stone, but did you ever hear of cut stone being compared to anything else, except downward? Selah.

WHAT shall we do with the waste? This is a question that confronts every quarryman in the whole range of rock products. A large percentage of the cost of all kinds of raw material when looked at from another standpoint is the production of waste. How much cheaper could the quarry be operated if there was no stripping, and in mining operations it's the unforeseen and uncalculated spurious pockets and strata that interfere with profits. Every bit of waste that can be turned into a by-product is clear gain. Let every fellow study his own waste pile after he knows what it has cost him.

NEVER before have the quarries been so well equipped with appliances for cheapening and at the same time increasing the output. This applies in all lines from the bulky crusher plant to the lightest plug drill. Some of the devices employed are exceedingly ingenious of themselves, expressing the high degree of progress that has been attained in this land of ours. The universal move in the direction of up-to-date equipment shows that the quarryman does not intend to be classified as a back number. Hydraulic stripping tools have proved their efficacy and economy beyond a doubt.

From Our Own Correspondents.

GREATER NEW YORK.

NEW YORK, N. Y., February 9.—Labor conditions in New York have been bubbling and seething right along. About the 10th of January the carpenters, both of the Brotherhood and the Amalgamated, resolved not to go back to work till the lock-out ends. A proposition to go back to work under the employers' new arbitration agreement, but to still retain their cards in the old unions, was voted down. Then on January 10 the stone cutters' strike was declared off. The strike originated in the yards of Wm. Bradley & Son, who were working on the stone for the Trinity Building, and on October 5 the stone cutters all over town, 1,800 in all, quit work. The strike was declared off and the men signed the arbitration agreement and applied for work again in all the yards. About the same time the Housesmiths' and Bridgemen's Union, who are working under the employers' arbitration agreement, put in a demand for \$5.00 per day, an increase of 50 cents. Mr. Theodore Starrett, of the Thompson-Starrett Co., has been making things interesting by the charges that he has been bringing against the unions and the "Chinamen" equally. He charges that they have been in an unholy combination whereby the employers have raised the wages of the unions, taking it out of the investing builder, of course; while the unions have co-operated by refusing to work for any builder outside of the Employers' Association; and that with the unions' help the employers have built a Chinese wall around New York, keeping out any builder who might dare to try to "butt in"; hence, the name applied by him to them of "Chinamen." The employers deny most emphatically every charge he makes and there it stands.

On January 17 the Thompson-Starrett Co. announced that they would re-employ the members of the Brotherhood of Carpenters whom they had locked out some months ago. This move has made the unions very jubilant, but the employers say it will have no effect upon their actions. On January 20 the members of several large contracting firms met at the Hotel Marie Antoinette, 66th Street and Broadway, to form a new association to be called the Master Builders' Association. Several prominent firms were represented, including the Thompson-Starrett Co. John R. Sheehan said: "Our object is to do our work without restriction and to bring about an open market for material."

On January 21 another effort was made to end the lock-out of the Plasterers' Society by the Employing Plasterers' Association, but it was turned down at meetings of all the locals of plasterers in New York and Jersey City. The proposition was that the national union give charters to the two new unions of plasterers formed under the arbitration agreement. On January 22 the Conciliation Committee of the Civic Federation has taken up the matter of bringing the Building Trades Employers and the Unions together, and a conference has already been arranged. On January 27 the Emergency Committee of the Building Trades Employers referred to the Grievance Committee the charges against Theodore Starrett of taking back his locked-out men, and he was summoned to appear before them on the 30th to answer the charges. On the same date P. K. Stephenson, secretary of the Employers' Association, made the statement, in reply to Theodore Starrett's charges, that outsiders were by collusion kept out of New York by instancing the case of H. L. Kruesler, a general contractor of Pittsburgh, who has obtained a contract for a \$250,000.00 job at 82d Street and W. E. Avenue from the Willett Realty Co. Chas. L. Eldlitz has put in a general denial answer to the suit brought against him as

president of the Employers' Association, by the Manhattan Borough Council of the Brotherhood of Carpenters for \$250,000.00 damages arising out of the late strikes and lock-outs.

Increase in Building.

In New York the building operations of December, 1904, with permits for 251 buildings, were \$7,988,175.00, showing a gain of 39 per cent. over the total of December, 1903. In Brooklyn there were six hundred and forty-eight permits issued at a cost of \$4,500,000.00. The great amount of residential building going on in Brooklyn accounts for the larger number of buildings, though at a much less total of money.

A Home for the Engineers.

The much discussed Engineers' Club is soon to materialize. Plans have been filed for a thirteen story building with a roof garden. It will be of brick with marble trimmings, and will cost \$500,000.00. Whitfield & King are the architects.

Donation to St. John's Cathedral.

The cathedral authorities have been much elated by the munificent gift of Mr. Levi P. Morton, of \$600,000.00. This amount will give a great impetus to the building operations and will serve to nearly complete the choir, the remaining arches, and the roofing in of the space which they embrace, and which is termed the crossing.

The Contractors Are Interested.

The news that Henry Phipps will give \$1,000,000.00 for the purpose of building model tenement houses was very gratifying to a group of philanthropists who are giving a great deal of attention and enthusiasm to this much needed project, and also to a number of contractors who have had experience in building many model tenements already.

Death of Two Old-Timers.

Richard Childwick, a retired builder, well known to many of the older building supply men, died in Brooklyn on January 18th, at his residence, 461 Fourteenth Street.

There was also noted the death of Charles D. Vassar, who was well known in the brick trade from the many high chimneys he had constructed. He was originally a mason but having built a few chimneys of remarkable height and efficiency his fame spread, and soon he made that his specialty. His services were called for all over the country, and he finally retired with a competency.

Bricks Are Soaring.

Since the close of the first week in January bricks have been moving upward. They were running then at \$8.25@8.50 and the stock on hand was rather low. By the end of next week this supply had been much further depleted, and as navigation was effected by the cold weather the price advanced to \$9.75@10.00. There were not near enough bricks to go around and any price could be obtained. Back in the fall when bricks were holding up so steady, with a rising tendency, some dealers predicted a \$10.00 price when building opened in the spring, but not one of them can truthfully say that he expected that figure to be reached in January. A week later the price had advanced to \$10.25@10.75. The most sanguine boomer hardly looks for anything higher than that. At the time when the above price, unprecedented for many years, was reached there were estimated to be eleven or twelve million bricks in the city. It was thought that this amount would carry the trade over till a thaw or some other favorable event happened to give a relief to the market. The cold spell setting in at the present writing, and which bids fair to be continuous, may give prices another "boost" yet.

The Brickmakers Celebrate.

It may have been that the high prices brought the brick men together, or may be they were to meet at just that time any how, but the fact is they did meet at the Murray Hill Lyceum on January 8, and had a good time. The John B. Rose Co. did the honors and saw that no one came down from Haverstraw and other brick centers for nothing. A few statistics were got off relative to the decrease in consumption in 1903 and the big increase in 1904, in which year 800,000,000 bricks were used in New York City. Then some prognostications were indulged in to the effect that the subways, tunnels and house building in the Bronx and Brooklyn would call for about a billion or so this year. Then all hands adjourned to the big hall and gave their attention to the champagne and

the viands, after which they listened to a vaudeville entertainment and every one went off in good spirits, having had a mighty good time, and ready to confront with complacency any fate that the brick market had in store for them.

Encouraging Cement Conditions.

Cement has been holding up very steadily and the month will in all respects compare favorably with the same month in any other year. It has been running in large bulk at the mill 80c to February 1 and 90c to March 1, with no prices after March 1. The dragweight of over-production that has hung round the neck of the trade has been thrown off. Some smaller concerns have succumbed and the stronger ones have weathered out the low prices, and the new year now begins with a buoyancy to which the trade has been a stranger for some time back, and all that is needed now for a very good year is the lifting of the labor troubles.

Lime has been steady with prices unchanged during the month.

Change of Management.

On January 19, W. W. Maclay resigned as president and manager of the Glens Falls Cement Co., and was succeeded by George F. Baile, formerly manager for Simpson, Crawford & Co., of New York.

The F. L. Smidth Co. Active.

The cement manufacturers are fully alive to the necessity for both economy and efficiency in their mills, and are making important changes and contracts for the installation of such machinery to a large extent, is shown by the recent orders received by F. L. Smidth & Co., of New York. Last week they made one shipment to the Lehigh Portland Cement Co., at West Coplay, Pa., of seven carloads, containing three Smidth kominuters and four Davidsons tubemills, to be installed in the revision of the mill "B" plant. In addition to this they have taken the order of the same company for eighteen kominuters and tubemills for use in the raw and clinker departments of the new mill "G" to be built in Southern Indiana.

They have also contracted with the Lawrence Cement Co., of Pennsylvania, to do the engineering work and supply the grinding machinery for the large extension to their plant in Slegfried, Pa.; kominuters and tubemills will be used for both raw and clinker grinding.

Orders for kominuters and tube mills have been received from J. B. Speed & Co., of Louisville, Ky., for their new Portland cement plant at Speeds, Ind., the raw material and clinker grinding being done exclusively with these machines.

The Elk Portland Cement and Lime Co. will reconstruct their mill at Elk Rapids, Mich., using the dry process instead of the wet process as heretofore. Smidth & Co. are doing the engineering work as well as supplying some of the grinding machinery.

The Alma Cement Co., of Wellston, Ohio, have abandoned the use of rolls for the preliminary reduction of clinker and have substituted therefor Smidth kominuters for coarse grinding.

Another Slag Cement Plant.

The Ruggles-Coles Engineering Co., together with C. J. Curtin, both at 39 Cortlandt Street, are erecting another slag cement plant at North Sydney, Nova Scotia. The slag used will be that of the Dominion Iron and Steel Co. This plant will be the same size and general character as that recently erected by the same gentlemen for the Ashland Iron and Mining Co., Ashland, Ky., and will have a capacity of 500 barrels per day. The Ruggles-Coles Co. report good sales for the past few months, with business in very good condition for the spring, as evidenced by their many communications from customers. Among other driers which they have sold during the month have been coal drier for the Lawrence Cement Co., Slegfried, Pa., and driers for J. B. Speed Co., Louisville, Ky., for their new cement plant.

An Established Price for Lime.

A visit to the office of the Farnham-Cheshire Lime Co., at 39 Cortlandt Street, found Mr. C. J. Curtin, the president of the company, back at his desk again. He said that after a somewhat quiet time for the past three weeks things were looking bright again, and orders for the company's lime were coming in very rapidly from their different agents throughout the country. Mr. Curtin furthermore stated that the prices of Farnham-Cheshire lime will be the same as last year, with the distinct understanding that there will be no change through the year, "which," he said, "will place our customers in a position to know always where they stand in making contracts."

Found It in the Repair Shops.

Mr. Harrison's experience with the railroads as narrated in last month's issue, was of great interest to the stone men. Several occurrences along the same lines were narrated, but the most interesting of them was that of an up-town quarryman and dealer, who, failing to receive a carload of stone after a generous allowance of over-time on it, proceeded to look it up, and after some days' steady work located it up the line in the repair shop. He phoned the shop and was told that the car had been sent in for repairs. Why didn't they transfer the contents? Oh, they had nothing to do with that? How long had it been in the shops? Oh, about five days. When would it be out? Oh, they didn't know. He looked it up at once with the heads of the road (on Saturday) and on Monday morning he had the goods safely in New York. He was more fortunate.

Sending Monumental Work West.

The Massachusetts Monumental Co. has just sent to New Castle, Ind., a square monument 8 ft. 6 in. with a 4 ft. 4 in. base in two courses, finished with a peaked top and including five markers. It is of the finest bit of Barre granite that Mr. Leaman could select and will largely aid in extending the fame of the Barre stone in that locality. They have also sent a 13 ft. 6 in. marble shaft to Stonington, Conn.

New York Men at the Cut Stone and Quarrymen's Convention

Among those present representing New York was Mr. Dickinson, of the Bedford Quarries Co. He was kept pretty busy welcoming his many friends, and his smiling face and genial ways helped much to make up the fun and jollity of the occasion. He found time once or twice during the banquet to slip down stairs and have a social meeting with some of his friends who did not get in to partake of the festivities upstairs.

Mr. Beddoe was on hand representing the Perry-Matthews-Buskirk Co. He is a young man who has but recently taken up his abode in New York, where he has settled for a permanent location. He has visited the trade very thoroughly in the interest of the company, and has made friends of all he has come in contact with and they were all pleased to meet him again at the banquet.

The Messrs. Grice at the Convention.

Among those representing trade supplies who were at the meeting were Arthur G. Grice and Chas. A. Grice, of the firm of George Anderson & Co. It was an interesting incident to see two young men who have but recently established themselves in this country, receiving such general attention and recognition from the members of the two trades present. This was to be accounted for by the energetic character of these two gentlemen, who have already fully visited the trade, though they have only been here a few months; so much so, that one of the leading quarrymen remarked that the trade had never been so thoroughly rounded up before. They were pleased to meet so many of their patrons who gave good accounts of the machines already ordered and left orders with them for others. The firm has now a branch office at 420 Ogden Street, Newark, N. J., and makes a complete line of stone working machinery, and will soon bring out a new granite and marble machine.

Meets the Boys at His Shop.

Mr. Willard F. Meyers, Vernon Avenue and Fourteenth Street, Long Island City, was out in Lynn, Mass., where he was inspecting the running of one of his latest diamond saws which he had recently put in for Shea & Donnelly at 28 and 30 Harbor Street, who are general stone contractors. He found them very busy and engaged in enclosing their entire yard under one roof. They were also putting in their own electric plant, with a 30-ton electric traveler to go the full length of the mill.

Although he missed the folks at the meeting he had a visit from them all on Saturday afternoon, when they also visited John Gillies & Son, and saw one of Mr. Meyer's diamond saws in operation there. Mr. Meyers has just sent back another saw to Barr, Thaw & Fraser, of Hoboken, N. J., and also one to W. H. McWhirter in Astoria, L. I., with many other inquiries coming in.

The Stitch in Time.

Among the out of town men was Mr. Alexander Cole, of the Iron City Stone and Construction Co., of Wilkesburg, Pa. He was much pleased with the whole convention, and especially the banquet with its line of interesting speeches. Mr. Cole said that his hobby was squaring and truing up. At first it was a cause of constant wonder and

amusement to his partners to see him, whenever there was the slightest lull, go to work and overhaul machinery that apparently was working all right. But, he said, there was where the average stone man deceives himself in letting things run on too long unlooked after, simply because they do not appear to be going wrong.

There is no kind of machinery which you should look closer to than stone machinery, because there is none that gets such pounding. An imperceptible variance at the shafting may finally mean an inch or more out of the way at the work, and then it becomes much more difficult and expensive to correct. The good results of his constant supervision of the machinery have been so apparent that his work in that line is now a regular part of his duties.

Kotten's New Portable Mining Drill.

Mr. H. G. Kotten, 120 Liberty Street, is very busy just now. The works are going day and night on his full line of new tools, all of which are improvements over last year's patterns. He is now making up his stock for spring delivery, the magnitude of which may be known from the fact that there are orders going through the factory now for 5,000 machines for the spring demand, about 2,500 of which are completed and ready for delivery. He has a new portable mining drill, weighing about forty pounds complete, which has already met with a great success in some of the largest mines in the world, a full announcement of which will be made later on, as soon as the printing and circulars are ready.

A Handsome Pamphlet.

The Ingersoll-Sergeant Drill Co., 26 Cortlandt Street, has issued a pamphlet on Coal Mining Machinery. It would be more fitting to call it a book, as it is 134 pages, on heavy paper with wide margins and clear book type. It is covered with heavy red paper, printed in black and bronze and fully sustains the claim made for it, while in course of preparation, that it would be the handsomest coal mining pamphlet ever issued. It is replete with half-tones from photographs of different sizes and kinds of drills in actual use in the mines, and is most interesting for those views alone.

American Air Compressors in Demand.

The American Air Compressor Works, 26 Cortlandt Street, are installing a complete pneumatic stave plant for Messrs. Clough & Molloy, Baltimore, Md.; and they are also building a large Cross compound air compressor for the Quintard Iron Works, of this city. They report both their foreign and domestic sales for the last two months have been in excess of that of any two months in their business history.

The Jackson Hand Power Drill.

A passing visit to Mr. H. D. Crippen, 25 Broad Street, found him very much pleased over a report received from the Somerset Stone Crushing Co., of Bernardsville, N. J., concerning one of his Jackson hand drills, which they had purchased about two months ago. It has been put to a very severe test during all of that time and has proved perfectly satisfactory, and is doing good, hard work daily. Mr. Crippen has some interesting records of the use of the drill in a number of properties for five and six years, where it is still in operation doing steady work in all the varied forms of hard material that are to be met with in a general run of quarrying and especially mining work.

A Friend to the Quarrymen.

The Pulsometer Steam Pump Co., 1708 Whitehall Building, New York, has done a very large trade with the quarries during 1904, and it has in all cases proved a good purchase to the users. A large number has been sold up in the New England States, and especially in Vermont. The company has recently forwarded a duplicate order for a three-inch pump to John Diebold & Sons, contractors of Louisville, Ky., to be used on their big gang saw, and which is most successfully doing the work that was cut out for it.

About the Indianapolis Convention.

Mr. Noyes F. Palmer has returned thoroughly satisfied with the results of the convention. He said it had done more to clear away the fogs that had enveloped the building block subject than ten years of writing. It showed to the trade what could and ought to be done and what never should have been done, and the general sentiment seemed to be one of profiting by what had gone before

and accept what was good and improving. The next step in the art is for the cement trade to formally recognize the block business and prepare a raw material and call it "Building Block Cement." He said, "We of the building block trade know exactly what we want, and are waiting to see it come along."

One of the members of the Indianapolis Convention when he saw the tons of blocks and machines going up on the elevator, said he regretted that he had not brought along a finished house. He said it certainly was a weighty meeting.

The St. Louis Grand Prize.

Now that the great St. Louis World's Fair is over, a word or two regarding the character of the Grand Prizes awarded may not be amiss. Among these was one to the Schwarz System Brick Co., 8 and 10 Bridge Street, New York, for Excellence of Machinery and of brick produced by them. They made no effort at any elaborate show, and concentrated all their efforts on what the practical investigator desired, namely, the merits of their machinery and its product; and that they got a Grand Prize and gold medal on those two points, which are the chief and only ones worthy of practical consideration, is a matter of great pride to them and of congratulation from their friends.

The American Process Co.'s Special Machines.

The American Process Co., 62 William Street, New York, manufacturers of dryers for automatic drying with direct heat by direct contact, report that for the month of January they have received an unprecedented number of orders for machines for drying sand, plaster, marl, phosphate rock, etc.; also, for machines of special design where the material will not admit of coming into direct contact with the gases of combustion.

The attractive features are economy of fuel and labor, low first cost, simplicity of construction, and small cost to install. Catalogues and full information will be sent by the company to all who are interested.

The Kent Mill Co. is Busy.

The Buckhorn Portland Cement Co., of Mannheim, W. Va., after trying a Kent mill for several months have placed their order for Kent mills, which they will install to take the place of other types of mills.

The Portland Cement Co., of Portland, Colo., are equipping their factory with the Kent mill.

Armour & Co. are building a new fertilizer factory in Jacksonville, Fla., a strictly modern plant with all the latest improved machinery, including Kent mills for grinding the phosphate rock.

Mr. Caritte Will Visit Bermuda.

The United States Drying and Engineering Co., 66 Beaver Street, is installing a plant for the Philadelphia Quartz Co., Cambridge, N. J., and also one for the Elkinton Co., of Philadelphia. Mr. Caritte reports the drying and engineering business to be very good, especially in all forms of rock products, and the outlook for spring business is very cheerful. Mr. Caritte has had a busy fall and winter, and he felt that he was entitled to a little rest, and as he has the prospect of a strenuous spring season before him, he concluded to take advantage of the few quiet days that come in the end of January and first part of February, and so he has made arrangements to slip off to Bermuda and let the dryer business pull along without him for a little while.

No Fertilizer Plant for Nashville.

D. C. Scales and the others with him who had contemplated erecting a fertilizer factory in Nashville, Tenn., have abandoned their project owing to their failure to make satisfactory arrangements with the owners of the property which they had planned to acquire.

American Tools in South America.

A very enterprising agent from South America was here recently looking into the varieties of American tools for road making, and he left an order with the National Drill and Supply Co., 11 Park Row, for a full line of implements, including rock crushers, elevators, screens, wheeled and drag scrapers, wagons, elevating graders and well drilling machines. He subsequently, after further looking around, supplemented it by another of about the same general character, the two aggregating about \$9,000.00.

In addition to this the company is sending a full line of well drilling tools to another part of South America.

The Germans Looking into American Machinery.

The American Consul at Madgeburg, Germany, reports inquiries for American road tools, their cost, utility, etc. Any announcements or catalogues sent to that consulate will be delivered to the inquiring dealers. Prices should be quoted f. o. b. New York.

A Notable Installment.

Among various sales lately made by the Austin Manufacturing Co., 11 Park Row, there is a contract just closed with the Marquis Stone Co., of Newcastle, Pa., for a large plant including one No. 8 crusher, three No. 5 and two No. 3. It also includes screens, elevators, shafting, etc. This will be one of the largest plants in the country. The Marquis Stone Co. is a large concern, which has been in the business of furnishing flux for furnace work for many years. The new plant will have a capacity of over 2,000 tons per day. Col. D. H. Lawton, the New York manager, spent several days there looking over the ground, and planned the installment himself. The order was placed after the strictest investigation.

SYRACUSE.

SYRACUSE, N. Y., January 25.—The outlook for the rock product business in Central New York is the brightest it has been in many years. A large amount of building will take place in Syracuse and the use of rock products will enter into the plans of the architects. It is worthy of note that in the erection of the G. C. Hanford manufacturing plant artificial stone made by the Onondaga Litholite Co. will be used.

The Canal Quarry Co. has been incorporated with its main office in the city of Syracuse, the capitalization being \$60,000.00. The company holds an option on a valuable limestone quarry located a mile west of Lockport directly on the line of the barge canal which is to be built across New York State. A large amount of business is anticipated in connection with the canal. The proposition was considered by the late John Dunfee, and it was his intention in case he acquired any of the canal contracts to buy the quarry. The quarry contains over 1,000,000 yards of stone and was first worked when the Erie canal was put through. Large quantities of the stone have been used and the Lenox library in Fifth Avenue, New York City, is built of it. The quarry covers ten acres and extends along the canal a distance of 2,700 feet. The quarry is so narrow that one derrick could be used to load boats on the Erie and the Barge canal. There is no other quarry on the line between Syracuse and Buffalo, and it is expected that the stone will be in great demand by canal contractors. The directors of the quarry are: Edward F. Shea, president; Maurice A. Phelps, secretary; Wm. E. Webster, treasurer.

The Little Falls Stone Co. has been organized at Little Falls and will utilize the vast resources of the place in the form of gneiss or trap rock. The directors are: Dr. John Hurley, City Judge James E. Donovan and John O'Rourke, of Little Falls. The company is capitalized at \$500,000.00 and will install upon the Burnt Rocks Moss Island and other rocky wastes where the rock abounds, stone crushing plants and orders have already been placed for machinery, valued at \$60,000.00. It is learned that the company has options on other stone crushing plants in the Mohawk Valley. The officers of the new company are: John Hurley, president; Otis H. Hyer, vice president; Dennis G. Maxwell, secretary and treasurer, all of Little Falls.

China Company Fails.

The Syracuse China Co. has become stranded on the shoals. Just as its new plant in this city was completed and ready for work, all the machinery having been installed, the creditors of the company swooped down and one of them, the Stone-Fuller Co., of Cleveland, Ohio, filed a petition in involuntary bankruptcy. For the past month various concerns have been filing mechanics' liens against the property and it is said that about \$20,000.00 is owed. The company was incorporated last May with a capitalization of \$150,000.00. The new plant in the West End cost about \$90,000.00. The trouble was that on account of internal dissensions some of the men relied upon failed to put up the necessary money, and the company was forced to the wall. The following statement was made by one of the officers: "We believe the trouble will not delay the opening and operating of the new plant. Most of the ma-

chinery is installed and a large amount of machinery is on hand. We recently decided to issue some preferred stock, the sale of a good part of which has already been arranged for. This caused some delay, as the necessary legal proceedings had to be gone through with and settlements due January 1 were not made. This caused uneasiness among creditors who are familiar with our plans. There is no occasion for alarm and we will have one of the strong institutions of the city."

The officers of the company are: John R. Dingle, of Westfield, Pa., president; H. Elting, Utica, vice president; M. Burton Coe, Syracuse, treasurer; F. L. Webb, Jr., Syracuse, secretary.

Four miles of pavement will be laid in Syracuse during the coming year according to the schedule of City Engineer F. J. Schnauber. Brick and asphalt will be the material used.

Articles of incorporation have been filed for the Syracuse Asbestos Co., of which August Finck, Jr., Walter A. Beattie, Clayton H. Wilcox, Edwin L. Loomis and H. E. Miller, all of this city, are directors. The capitalization is \$100,000.00. For some time the company has been operating a small asbestos plant at Black Lake, Canada, but recently operations were suspended. The company proposes to start up in the spring on a large scale and erect a plant at a cost of \$75,000.00. The offices of the company will be located in this city and the officers of the company are: President, August Finck, Jr.; vice president, Edwin L. Loomis; secretary, Clayton H. Wilcox; treasurer, Walter A. Beattie. The company has a large amount of contracts.

Judge Ray, of the United States Supreme Court, has handed down a decision in the matter of the application of the Solvay Process Co., which applied for a review of the decision of the Board of United States General Appraisers as to the rate of duty imposed on fire brick imported by the company. The Board of Appraisers affirmed the action of the collector of Syracuse in imposing a 35 per cent. *ad valorem* duty. The claim is made in the protest that the duty should have been \$2.00 per ton. Judge Ray upholds this contention but says he has to sustain the action of the General Appraisers on the ground that there were technical mistakes in the appeal.

The amount of sewers laid in this city during the past year has been larger than in any previous year, the total being 12.21 miles. The cost was \$132,000.00.

Frederick R. Hazard, president of the Solvay Process Company, has this to say about the business of the year: "There has been a little set back owing to the presidential year, but it was not as pronounced as in former years, and our output was practically what was figured upon."

Sand-Lime Brick in Demand.

The Paragon Plaster Co. has expended \$50,000.00 during the year on a new sand-lime brick plant and they are now selling all the brick that can be made. The business shows a big increase.

One of the most important events of the past month was the forming of the C. H. Halcomb Steel Co. which will build a large steel plant in this city under the management of C. H. Halcomb, who was formerly connected with the Crucible Steel Co., of America. The officers are: President, C. H. Halcomb; vice president, Fred B. Scott; treasurer, Frederick R. Hazard; secretary, Frank E. Wade. The committee to choose a site consist of C. H. Halcomb, F. R. Hazard and L. C. Smith.

The Central New York Pottery Co. has filed with the Secretary of State a certificate of change of place of business from Syracuse to Chittenango. The directors are: A. Hoffman, Herman Bartels, Jr., Herman Bartels and C. F. E. Meisterling, all of Syracuse.

William A. Bowers, who has been foreman of the Ogdensburg Marble Co. for the past seven years, has severed his connection with that company, and early in the spring, with his two brothers, S. A. and R. J. Bowers, will open a marble and granite shop.

The Roosevelt Lead and Zinc Co., of Gouverneur, has been incorporated with a capital of \$100,000.00. F. H. Haile, C. McCarthy and D. G. Schoulton are among those interested.

The report of the salt inspector stationed in this city shows a falling off in the amount of salt manufactured during the past year. At Lansing, N. Y., the quantity increased and additional facilities are being installed.

The Artificial Paving Co., of Syracuse, has certified that one-half its capital of \$10,000.00 has been paid in.

CHICAGO, ILL.

CHICAGO, ILL., January 27.—While the building operations in this city during the year 1904 were upon a highly satisfactory basis, those contemplated for the present year will far exceed those of the previous one. The net gain during 1904 over that of 1903 was 31 per cent. The cost of buildings in Chicago in 1904 was \$45,667,560.00, a sum exceeded only by New York and Philadelphia; Chicago standing in third place. The percentage of increase was greater here than in New York, which was only 19, while in Brooklyn the increase was 107. The decrease in New York was due to labor troubles which Chicago, in the line of building operations, escaped.

The present outlook for still greater progress this year, according to the views of architects, builders and contractors, is exceedingly bright, and it now seems absolutely certain that all material men will have the chance of their lives in vastly bettering their individual conditions. In view of this promising outlook, the handlers of building materials in almost every line are making great preparations to enlarge the scope of their work. Some of the brick yards will increase the capacity of their plants; the owners of valuable stone quarries in this and adjoining States will increase their productions; the cement, concrete and lime makers will enlarge the scope of their operations; the sand men will be kept busy earning profits; in fact, every branch of trade with which material men are closely affiliated will commence operations on a larger scale than they have ever undertaken before, and, barring some possible labor troubles in some lines of their operations will push whatever kind of work they may have in hand to the utmost of their several capacities.

Use of Cement Increasing.

The constantly enlarging uses of cement, concrete and crushed stone has turned the attention of many men to these branches of business, and the increasing demands for machinery suitable for this kind of work point out the wide interest that is now being taken in these lines of manufacture.

A call at several houses where machinery of the class for crushing stone is sold, and concrete mixers, conveys the idea that everybody who controls the opportunities are about to engage in these lines, and plants already established are, in many instances, being enlarged to the extent that double their present capacity.

Midwinter Business Dull.

This is mid-winter, and during the past week the building interests have suffered somewhat. The cold weather has halted many branches of the materials trades, but as nearly all the skyscrapers sent upward during the summer and fall months are under cover, work towards their internal completion has gone forward steadily. Foundations for new buildings are going forward. While they still stand and are occupied, caissons are being sunk and the deep foundations, down to bed rock, are being sunk underneath the present structures and the deep foundations laid so that when they are complete, the demolition of the building will speedily follow. This is the case now just begun in the enlargement of Marshall Field & Co.'s new store. Concrete foundations now enter into all large buildings being built in this city, the old style of foundation having become almost obsolete.

The Convict Labor Fight.

The question of convict labor is still agitated in the minds of the stone men, and owners of quarries in the vicinity of the prisons. It is generally conceded, outside of the working interest of quarry men, that steps must be taken to give the convicts work. The matter is now before the legislators at Springfield. One scheme is to inaugurate a big State business in crushing stone for public highways. The stone men contend they are fully able to do this work and furnish the State with all the stone it needs.

This city laid last year 517 miles of sidewalks, which included 42 miles were asphalt; macadam, 28 miles; cement, 292 miles; granite, 5 miles, and brick, 5 miles.

An Immense Contract.

One of the largest building contracts recently let in this city was one for \$3,000,000.00. This contract was taken by the well known building firm The Thompson-Starrett Co., and was given out by the Sears-Roebuck Co. Work on the excavations has already commenced. The contract covers the erection of eight buildings, which will extend over a tract half a mile long and 400 feet wide. The Thompson-Starrett Co. has built, among others, the Heyworth building, in Chicago; the Rockefeller building, in Cleveland, and the Wanamaker building, in Philadelphia.

At the Chicago Avenue water works preparations are now making for laying the concrete foundation for the second 25,000,000 gallon per day pump. William E. McCarthy, a well known contractor, secured the job at \$19,800.00.

Contractors are expecting trouble at the hands of cement workers, as their unions have decided an increased 10 per cent. in wages for cement finishers and 5 per cent. increase for helpers.

Good Demand for Crushers.

The Gates Iron Works, now known as The Allis-Chalmers plants, is busy on stone crushers, and an extraordinary demand is expected to equip many new plants which are springing up in various parts of the country. The Allis-Chalmers people report business steadily on the increase and prospects exceedingly bright for the coming spring and summer work.

F. W. Renwick, general manager of the Chicago Gravel Co., office in the Fisher Building, says his company has opened a new plant at Millsdale, Ill., on the line of the newly completed electric railway—the Joliet, Plainfield and Aurora Railroad.

The Sand-Limestone Co., with offices in the Great Northern Building, is marching straight ahead, and each month witnesses an increase in the number of plants being established in various parts of the country. Among the latest is a new plant just a little distant from Tampa, Fla., located on a bed of splendid sand two miles long and a quarter of a mile wide. New plants have also been started at Aberdeen, Miss., and at Muncie, Ind. The new year of 1905 opens well for the Sand-Limestone Co., and the outlook most auspicious.

The brick market at this season of the year is quiet, but for deliveries ahead there is considerable doing. Mr. Gray, secretary of the Illinois Brick Co., quotes prices at \$8.00 per 1,000, with 10 per cent. off if paid in ten days, and for large contracts at \$8.00 with \$1.00 off. All the yards are idle at the present time, but will resume business when the weather is sufficiently warm to warrant.

In the cement line there is nothing of consequence doing. Contracts for future delivery, however, have been made on a liberal scale, but no terms are made public. The cement plants will find active work ahead according to those who are best posted.

The Stearns Stone and Lime Co., 165 Randolph Street, say lime is selling anywhere from 70 cents to a few cents above that figure, but that the movement at this season of the year amounts to very little. One or two other houses quote lime nominal at 65 to 70 cents, with nothing doing.

CUBAN NOTES.

HAVANA, CUBA, January 25.—The large amount of construction work in the city of Havana and surrounding country is giving the material men on lime, cement and similar lines a good trade on the island of Cuba and in the city of Havana.

William Maley, a brick manufacturer from Haverstock, N. Y., was a recent visitor on the island.

A party of Wisconsin people, who came in a few days ago on the Chalmette from New Orleans, included H. S. Plummer and daughter. Mr. Plummer is a lime and brick manufacturer of Menasha. Some boys in the party brought along a nice new tent, which cost them \$28.00, but on which the customhouse authorities soaked them for \$21.00 duty, which seemed a little out of proportion.

Edgar Descamp, of the Almdares Cement and Tile Co., of this city, whose works were partly destroyed by fire says the company will immediately repair the damages and resume manufacture. 15,000 barrels of cement in their place escaped the flames. The firemen of Havana did good work.

MEMPHIS AND THE SOUTHWEST.

MEMPHIS, TENN., January 26.—The building of sky scrapers and the talk of more tall buildings to go up, the customhouse addition now nearing completion, and other large private and municipal enterprises, to say nothing of the bill to be introduced within a day or two in the Tennessee legislature toward allowing a bond issue by Shelby County to erect a million dollar courthouse, have given some zest to the situation on products that enter into building, like stone, brick, slate, terra cotta, lime and cement. The country trade in these products has been good in the South despite the drop in cotton, for withal the South and Southwest seem to be in a very good fix.

Morris Bros., well known monumental workers here, have received an importation of marble from Italy within the past few days.

The Wright Lime and Cement Co. in their department for hydraulic stone manufactures, are meeting with an abundant success.

The Bartholomew Roofing Co. has had several warehouse projects in hand and a good run of winter business.

The Miller Paving Co., in spite of the bad weather of winter has been completing some out of doors municipal paving in Memphis. Miles of streets in this city have been put down by them.

The Aberdeen Sand-Lime Brick Co. is about to start in business at Aberdeen, Miss., a short distance south of Memphis. This concern has applied for a charter and is to have a capital stock of \$70,000.00.

INDIAN AND OKLAHOMA TERRITORIES.

The stockholders of the Ada Pressed Brick and Tile Co. have perfected an organization of their company and think they have fine prospects in Ada for the manufacture of brick. The following officers have just been selected by the company: Tom Hope, president; J. F. McKeel, vice president; John W. Beard, secretary, and Frank Jones, treasurer.

The Tulsa Cement Stone Manufacturing and Development Co., of Tulsa, I. T., has been incorporated with a capital stock of \$20,000.00. The incorporators are: Chas. O. Frye, M. A. Frye and Samuel Weston.

Sherman Switzer is preparing to put in a cement block machine at his place at Jefferson, O. T.

The Southern Marble Co., of Indian Territory, has lately received from the Department of the Interior the leases on the marble lands at Marble City in the eastern part of the Cherokee Nation. It has taken two years to have these leases approved. They are for 300 acres of the finest marble land in the Indian Territory. There is now a big plant building in Marble City which will cost \$100,000.00 and will give employment to hundreds of men. The town and the quarries are separated only by Sallisaw creek. Diamond drill prospecting shows that this marble bed covering hundreds of acres, is 142 feet thick and without a seam. It was this marble that won the medal for Southern production at the World's Fair. For fifteen years marble men have had their eye on this quarry, but the Indian laws were such that not a cubic foot of it could be quarried and shipped out of the territory. Ten years ago a company was formed at Ft. Smith to develop the quarries. It spent \$10,000.00 on a plant, having a lease agreement with the Cherokee Nation. After the money had been spent the Department of the Interior refused to approve the lease. This company was headed by Judge Clayton, now a Federal judge in the territory.

MISSOURI.

Announcement is made that David P. Thomas, for eighteen years president of the Fort Scott Cement Association, has accepted the position of vice president and secretary of the Halliwell Cement Co., 312 East Ninth Street, Kansas City, Mo.

Isaac Alexander and Walt Adair, who concluded the purchase of 450 lots in the city of Argentine and 160 acres of land just west of that city, will apply for a natural gas franchise at the next meeting of the Argentine council, preparatory to the construction of a vitrified brick and cement plant. The promoters have been buying land in the vicinity of Argentine for some time. The bluffs are composed almost wholly of a peculiar shale which is used at Iola and other places in Kansas for the manufacture of cement and vitrified brick. This

chain of bluffs extends for a considerable distance through Kansas, following the Klaw River.

Pope Bros. of Jefferson City, Mo., through their representative, Dr. George W. Tainter, are preparing to put in manufacturing plants in Sedalia and Boonville, Mo., for the manufacture of cement blocks like those used in the Jefferson Theatre at Jefferson City, Mo.

Clyde Buckingham has just returned to Joplin, Mo., from a visit to Chicago. While in the Windy City he combined business with pleasure and had manufactured a number of sample brick from Joplin tailings and Sacoxite lime. The sample brick are of extra fine quality, are smooth of surface and Mr. Buckingham states they have stood the test for paving as well as for building purposes. The samples were manufactured by a Chicago machinery house under a new process which Mr. Buckingham controls. He shipped a quantity of mine tailings to Chicago where they were crushed still finer. En route to Joplin, Mr. Buckingham stopped at the Frisco offices in St. Louis, where he exhibited his brick samples and the officials there were surprised to learn that the material came from the mines at Joplin. They predicted a fortune was to be made from the bricks.

A company has been organized at Independence, Mo., to make artificial stone. The new firm is Harry Sturges, Benj. Lowther and A. P. Felton. The firm will be called the Blue River Construction Co.

KANSAS.

Arcadia, Kan., claims that its new brick plant will be in operation by next summer. The deed for 25 acres of land for the new plant has been filed. The plant proposed will cost \$100,000.00 and will employ 100 men.

J. D. Cavenee has the contract at Lyons, Kan., for furnishing the cement blocks with which the engine house of the Cooper Milling Co.'s mill is to be constructed. He has a carload of cement on hand now and will soon begin turning out blocks.

At Plainville, Kan., S. W. Wood has recently purchased six lots and will erect a large building, as soon as possible, for the purpose of manufacturing cement concrete blocks.

The Hutchison Salt Co., in digging at Coldwell, Kan., has discovered an oil well at a depth of about 1,000 feet.

A new industry for Wichita, Kan., has been granted a charter under the name of the Wichita Sand and Mercantile Co., and capitalized at \$75,000.00. The new company has purchased Ackerman's Island and twenty-one acres directly west across the channel from the island. The land was recently bought from Ackerman for \$20,000.00, and it is the intention of the company to expend about \$60,000.00 in improvements.

At the meeting of the stockholders of the Hydraulic Stone and Brick Co., of Salina, Kan., the following officers were elected for the coming year: J. Duncan, T. W. Roach and G. C. Swartz.

J. F. Hines has gone to Colby, Kan., and purchased lots on which to start a factory for the manufacture of cement building blocks. He will perhaps start two factories, one at Colby and the other at Rexford.

The Independence, Kan., plant, of the Coffeyville Vitrified Brick and Tile Co., has resumed operations after having been closed down for repairs.

TEXAS.

At Houston, Tex., the Houston White Brick Co. has broken dirt for its plant which it will build just inside the city limits and fronting on Buffalo bayou.

Texas brick in large quantities will probably be used at Panama on the Isthmian canal work. Col. Sam Park, of the Beaumont Brick Co., states that his company will in all probability furnish the Isthmian Canal Commission with a million brick, to be used in building abutments and foundations for the heavy machinery and timbers to be placed along the canal route. He thinks that a big contract will be closed with the government in a few days. The brick will be routed over the Gulf to Galveston for shipment to Panama.

The Acme Cement Plaster Co. has commenced the building of a cement plant at Rush Springs, I. T. The plant will be connected with its gypsum beds, three miles west of that town, and in Oklahoma by a spur of the Chicago, Rock Island and Pacific railroad. The mill will have a monthly capacity of 30,000 tons of plaster and will distribute about \$100,000.00 in construction, and have a monthly pay roll when in operation of about \$5.

000.00. This company operates plants of similar character at Acme, Tex.; Cement, O. T., and many other places in the United States.

J. B. Seeger, president of the Consumers' Lignite Co., of Alba, Texas, states that he is erecting a brick plant to make brick of the slack coal that can not be used for other purposes. It will be the only plant of the kind in Texas.

A Dallas, Texas, item says: "It was stated at the Iola Portland Cement Works' general offices that the recent rumors regarding the intention to transfer the property to the National Cement Works, which is alleged to be the 'trust' of America, is without foundation."

It is said that President S. H. Bassett, of the Iola Co., is here primarily for the benefit of his father's health. The elder Bassett is here with an assistant and will probably remain during the winter. President Bassett will, in all probability, be here two or three weeks, supervising the installation of the new power plant at the works in West Dallas.

LOUISVILLE, KY.

LOUISVILLE, KY., February 1.—The rather severe weather during the greater part of last month has had its effect on business here. Consequently, while there is no very decidedly falling off in the building trades, it has not been nearly so brisk as it would have otherwise been. The general feeling however, is for a good year's business, just as soon as the worst of the winter weather is over.

There have been a considerable number of real estate transactions here of some importance. Unless all signs go amiss Louisville will have some notable improvements in its buildings during the present year. Valuable property at the southwest corner of Fourth Avenue and Chestnut Street, has been purchased by Mr. Peter Lee Atherton, and it is said that he contemplates the erection of an immense department store here at a future date. Similar conditions exist with regard to the corner of Fourth Avenue and Market Street, which will be improved with a modern bank building. Work of demolishing the old buildings on the site for the new armory is now going on.

The concrete block and reinforced concrete industries have just begun to make themselves felt. Several new concerns have lately gone into these lines and those already so engaged are making preparations for a large increase. The block business has been, up to this time, a little slow. The people seem dubious about the adoption of this material for buildings, fearing its wearing qualities. This has been overcome, at least in great part, and the outlook for this class of work is bright.

The views, as expressed by those in the various industries covered by Rock Products, were to the effect that the outlook was most favorable. They were just waiting the advent of the opening of the season, and were satisfied that the future could only bring good returns.

The Falls City Artificial Stone Co. said that they were just completing the erection of two concrete block houses. Views of these we hope to publish next month. Mr. Robinson said that while conditions were a trifle quiet now, on account of the cold weather, they were figuring on a considerable amount of work. The outlook was very favorable, he said, for concrete work of all kind.

Fitch, Troxell & Co., were not rushed with orders in concrete work. They had been busy, but the weather was causing them to slack up. Orders were looking up and the prospects were favorable for a good season's business.

The Kentucky Wall Plaster Co. reported that business was good and that they had as much as they could do. The severe weather was causing them some delay, but otherwise they were pleased with the season so far. The recent purchase of the Hoosier Wall Plaster plant at Jeffersonville, Ind., had increased their facilities, and business at the new plant was favorable.

Scott Newman said that the sand and gravel business was very quiet. He had a full six weeks' supply on hand, and the fact that the river was filled with ice, did not alarm him. When business opened up he was confident that it would come with a rush.

The Ohio River Sand Co. were not worried about the future. Business was not rushing, but they had an ample supply of sand and gravel in their yard. The demand was naturally slow at this season of the year, but when building operations did begin they looked for a big demand.

Samuel F. Troxell & Co., 108 Third Street, large tar and gravel roofers, were working whenever the weather permitted. Their orders were numerous and they had been quite busy. Considerable of their work is repairing, and at this time of the year the weather demands perfect roofs. The extreme cold was handicapping them somewhat in completing their orders.

The Southern Roofing and Paving Co. were quite busy, notwithstanding the unfavorable weather. They were doing some concrete work, mainly interior brewery contracts and considerable asphalt work. They will have all they can do just as soon as the severe weather is over.

The National Roofing and Supply Co. were not very busy, as the weather for roofing was holding back work. They were confident of a big business when things opened up.

W. F. Nugent, of W. F. Nugent & Bros., said that they were all tied up, but were taking things cheerfully, feeling much encouraged over the outlook for business in the sand and gravel business.

At the office of the Peter & Melcher Steam Stone Works, Mr. Peter said the cold weather had tied them up. He had just returned from the New York convention of the Cut Stone Contractors' Association, where he spent a pleasant time. He said there was nothing of special note, it being rather early to foresee just how things would turn out.

John Diebold & Sons, who recently completed the erection of an immense new shed, are now installing three planers from the New Albany Machine Co., and an electrical equipment for generating their own power. They contemplate spending about \$25,000.00 in improvements. This outlay will give them one of the most complete stone plants in this locality. Business was not particularly brisk, and when we called their plant was closed on account of the cold weather.

The National Concrete Construction Co. has just about completed the erection of its new office building on Main Street. This is an attractive structure, and gives them considerable more room. Business was quiet, mainly due to the cold, but the indications were encouraging.

The Peter-Burghard Stone Co. reported business generally quiet. It was the same old story about the cold having the usual result.

J. B. Speed & Co. said that the cement and lime industry was quiet just at present. They looked for an improvement in business soon, and had no fears about the outlook.

The Western Cement Co. had about the usual report to make regarding business at this season. Things were moving along quietly, with good prospects.

Mr. K. B. Grahm, of the Louisville Fire Brick Works, said they were still behind with their orders. There seemed to be no falling off in the demand for their brick.

J. S. Clark, of the J. S. Clark Co., stated to the Rock Products man that business with him was fairly good. He had a number of large orders but few small ones. Designs of this company have been accepted for handsome monuments to the memory of David Frantz, Jr., and Dr. E. O. Allhands, both deceased. The Frantz monument is to be made in a new Renaissance design with cross and urn. The Allhands memorial is a sarcophagus of classic pattern along lines of chaste beauty. Other less important orders are now under way. All are being made of the whitest and purest of select New England granite which Messrs. Clark & Co. make their specialty.

In the course of a brief talk on the monument business in general, Mr. Clark took occasion to deplore the practice among some manufacturers of duplicating the designs of others, which he said was being done to an astonishing extent. Many, he said, went into the business with no further preparation than an education as a stone cutter, and being unable to originate were forced to model their work after that of others. Not only were the results monotonous in many instances, according to Mr. Clark, but the action of these men worked a hardship upon those manufacturers who employed competent and high-priced designers. The majority of the public was not educated up to know the difference, and the competition of the cheap men had to be met. Mr. Clark is among those who hold out for correctness and beauty of design and the work which leaves his shop always is notable in these particulars.

OLD BOSTON TOWN.

Boston, Mass., January 24.—I always like to go to the Bay State city, the hub of New England. The boys you meet there in our line are the right sort. Boston is noted for many things but next in order after "baked beans" and Tom Lawson, the things that attract most attention in Boston are its wide awake business men and its pretty stenographers.

I made a flying visit among the boys here today and found everybody feeling good over present business and the prospects for the coming year. At the Jones Bros. Co., on Summer Street, Seward and Marshall Jones informed me that they are employing more men at their Barre quarries and cutting plant than they have ever done before in the history of their business. Seward Jones has another proposition on his hands now, however, that gives him something out of the ordinary to think about. He is, you know, the president of the newly formed National Association of the Granite Industries of the United States. We shall, when more familiar with the name, call it N. A. G. I. U. S., but it is too early in the game for that now. The organization is in good hands with him at its head and for the good of the trade it certainly is to be hoped that it will prove a success. There are many reasons why every granite manufacturer in the country should get into this association and help it along. It is not in every case at present that demands organization, but the future stands out most prominently before the eyes of all far-sighted granite men. The meeting to permanently organize will be held in Boston on the second Tuesday in February.

Out in Cambridgeport the Rawson & Morrison Manufacturing Co. are making things hum as usual and with their enormous machine plant are able to take all the business they can get. John Morrison informed me that they are soon to get out some new catalogues that are top notchers. They will of necessity be that if they are no better than the sort they have always got out. The company is doing a whole lot of business this winter with the cement people and in cable ways. They build nearly all kinds of machinery that men who deal in rock products can use.

Down on Atlantic Avenue, where the sea breezes blow, and where with the forest of ship rigging staring you in the face, the only thing you can think of is "rope," one finds the commodious and cleanly quarters of the Durable Wire Rope Co. Mr. H. H. Sullivan gave me the glad hand and said the wire rope business never was better. The firm has just made arrangements with John McDonald, an experienced employee of Marr & Gordon, at Barre, to act as their representative in Central Vermont, so that in case of any breaks their patrons may call upon Mr. McDonald, who is an expert rigger and splicer, for anything in his line at short notice.

H. H. Harvey, the veteran dealer in quarry supplies was not in at his old quarters on Atlantic Avenue, but I found a card out telling where to find him. I went thither and found him nicely located in most commodious quarters at 16 Oliver Street, with great big signs out in front which show that he has got the goods and that he is ready to give the glad hand to his customers. Mr. Harvey has been in the business for forty years, and what he doesn't know about the quarry supply trade has not been discovered. His granite tools, quarry jacks and winches are well known in the granite world as are also his boom derricks. His manufacturing plant is down in Maine.

Another veteran who is always in touch with Eastern stone men is J. H. Houghton, at 77 Oliver Street, who represents the Ligerwood Manufacturing Co., the Atlas Engine Works and the Skinner Engine Co. Mr. Houghton has been selling engines and hoisters for twenty years. He has sold over 1,500 Ligerwood hoisters and over 900 Atlas engines in New England, besides many cable ways of the Ligerwood make.

Mr. Githens, of the Ingersoll-Sergeant Co., is located in the same block as Mr. Houghton. He had just returned from New York when I called, and we had no trouble in agreeing that the soft stone people we met at the convention there were a pretty bright class of men.

PHILADELPHIA, PA.

PHILADELPHIA, PA., February 1.—The severe weather of the last few days has paralyzed all sorts of building operations, and business in the building trades is practically at a standstill. However, this is neither an unexpected nor a discouraging feature for this season of the year. Plans are going on for extensive operations, and most people are still taking a rosy view of the outlook.

The report of the City Bureau of Building Inspection for January shows which way the tide is going. The figures show that permits have been issued for work \$200,000.00 in excess of the permits issued for last January. Permits were issued for 440 operations to cost \$1,004,805.00.

The cement manufacturers, while not especially busy now, maintain their hopefulness as to the coming season's trade. Good business and higher prices are generally expected.

The Whitehall Co., one of the hustlers for the trade in the higher grades of cement, is making an aggressive business campaign. We are not doing so much now, but the less sold now the more we will sell and the better prices we will get later in the season. We expect much better business and higher prices than last year. The Whitehall Co. is issuing a monthly publication which it calls "Cementology." It contains many facts of interest to the users of cement; is a cleverly arranged and neatly printed advertisement—something unique, and a credit to the sales department.

Mr. Stewart, at the Wood Cement Co., said the storms had knocked immediate business flat, but that the outlook is encouraging.

The Charles Warner Co. reports business in lime and cement as slow at the present time, but they share the general confidence in conditions following the winter weather. In the lime trade generally business is quiet.

Manager Dix, of the Philadelphia office of the Consolidated Stone Co., reports a growing demand for Indiana limestone in this territory. It is being used more extensively in the smaller residences than ever before. He expects to put the product of Indiana quarries into at least a 1,000 houses to be built in Philadelphia this year, and it will go into several hundred to be erected in Altoona, Washington and Baltimore are also in Mr. Dix's territory. He says he expects big business in the rebuilding of the burned district. Plans which have been making for some time will be put into execution this year. He also reports a good demand for granite for building purposes.

Most of the stone cutters are at work, though this is not the active season, of course. There is comparatively little stock in the yards here, and it is the opinion that there is not a great deal at the quarries from which supplies come.

The papers read at the meeting of the Association of American Portland Cement Manufacturers, at the Hotel Astor in New York, in December, have been published in a neat pamphlet.

ST. LOUIS, MO.

St. Louis, Mo., February 10.—There is no doubt that immense sums of money were brought to St. Louis by visitors last year, and though much of it went away, some of it was carried off by the hundreds who came to the city to make money, honestly or otherwise, while other great sums went to many parts of the United States, both far and near, for the purchase of supplies of every description, yet a fair quantity of good dollars doubtless stuck to the fingers of St. Louis, in witness of which is the activity in the real estate market and the large amount of prospective building. During the month of January there have been a number of big deals, and more than four million dollars worth of property has changed hands. This is just about double the amount of business done in January, 1904. There is every reason to believe that this is not a mere spurt, but a part only of the needs of the investing public. The ground for this belief is that a number of the deals have been for residence property in spite of the fact that the weather throughout the month has been so severe that it was very unfavorable for viewing property. As a matter of course, nearly all building operations are held up at present with the thermometer where it has been for

days past, but work will be actively pushed as soon as the weather permits.

Manufacturing and business establishments are enlarging, rebuilding and improving their conditions. One of these, the Curtis Manufacturing Co., is about to remove to the suburbs from its present position on Washington Avenue and Twenty-first Street. The cost of the buildings will be over \$50,000.00.

The brewing companies are about to spend some of their surplus profits in building and improvements. In addition to the extensive stabling and other buildings planned by the Anheuser-Busch, the Gast Brewing Co. will improve the block on the east side of Broadway, from Cass Avenue to Florida Street. The office buildings are to be of Roman brick with granite trimmings. The many-gabled, or German style of architecture, has been adopted by Architect Charles Mueller, Jr. The cost of the building, machinery and equipment will be between fifty and sixty thousand dollars.

Happily the breweries have not gathered in all the cash for the Christian Publishing Co. evidently has some money to invest and is soon to move out further west to its new premises at 2710 Pine Street. It is said that this will be one of the largest publishing houses in the city. The buildings, of red brick, is three stories high and covers a lot 75 x 131 feet. The plant will be fitted with steam power and heating and a number of printing presses, which will be on the solid ground on a granitoid floor.

One of the old churches of the city, which has been standing unused for a long time at the corner of Eleventh and Locust Streets, will disappear and five, first class, three-story commercial buildings will take its place, each building to have a separate elevator, steam heating plant and all modern appliances. The lot is 120 feet on Locust Street by 103 feet on Eleventh Street to an alley.

The activity of New St. Louis is not alone shown in the number of deals in real estate, nor in the plans for new buildings, that very important element in the progress of a great city. The streets and pavements are being well cared for. Fifteen contracts were awarded last week by the Board of Public Improvements. The cost of improving the paving of these fifteen streets will amount to \$191,265.00. Of this the Parker-Washington Co., of West Virginia, gets \$61,602.00, while the Barber Asphalt Co. has only \$19,271.00, but I suppose they are mutually satisfied. The Granite Bituminous Paving Co. has \$25,598.00. The remainder is divided among five other contractors.

The Labor Troubles Not Fierce.

The labor question is not giving any trouble in our line at present in St. Louis. The Central Trades and Labor Union, which seeks to be "The little god out of the machinery," appears to be confining its attention to other lines. It reports that the livery stablemen's strike, which began January 10, 1904, still continues. Without this authoritative information the general public would not be aware of the fact. It looks as if the strike might go on like this for another decade or two and no one be a penny the worse. The cabinet makers decided to support a sister union, No. 204, and teach the Webber Moulding Co. a lesson. This company, which makes a large use of a rock product—whiting, the J. R. Webber Moulding Co. had the audacity to decide that it would run its business without the aid of the czar of Russia, or any other czar, that is to say, the company preferred an open shop. The trouble has continued for some time and it looks as if it might go on as long and as harmlessly as the liverymen's strike.

The lime and cement business generally, while still suffering, so far as concerns cement, from very low prices, is in a very hopeful condition. The great amount of improvements in sight, the \$9,000,000.00 bond issue for improvements, the efforts of the Business Men's League to bring new industries here, which are proving quite successful, are extremely encouraging. At the same time the cement men are energetically going after business.

The great company manufacturing cement in St. Louis, the St. Louis Portland Cement Co., reports inquiries from the country trade to be strong and that these have commenced earlier and cover a wider area than last year.

The Bradbury Marble Co. also finds inquiries coming in well from the country. This company has started a new department and works up its own granite. This will be Missouri red, long blue and Georgia granite.

THE TWIN CITIES.

MINNEAPOLIS, MINN., February 2.—A siege of terrific cold weather has served as something of a temporary check to the early fruition of plans for new work in the building line. There are a number of good jobs in embryo but thirty below tends to discourage their publication.

Prices for the new year on building materials are as follows: Brown lime in bulk, per barrel, 75 cents; white, 35 cents; Louisville cement in barrels, \$1.40; bags, 20 cents less; Milwaukee cement, barrels, \$1.30; bags, 20 cents less; Utica, Mankato and Austin cements the same as Milwaukee; Portland, in barrels, \$3.00; in bags, \$2.50. Hard wall plaster is \$9.00 per ton. St. Louis fire brick, \$30.00 per thousand for No. 1, and No. 2 \$3.00 less.

Eugene Teutsch, of Van Tuyl & Teutsch, of Minot, S. D., has returned home after attending the convention of the Northwest Cement Products Association. He visited Waterloo, Iowa, before going home, where he bought an Iowa concrete block machine. His firm will make all kinds of concrete blocks, plain and ornamental.

MINNEAPOLIS BUILDING NEWS.

The Sheltering Arms Society of the Episcopalian congregations propose the erection of an orphanage on lands which the association owns on Minnehaha creek. They have \$20,000.00 on hand and will raise about \$10,000.00 more.

The State Business College has had plans prepared by D. A. Omeyer, architect, of St. Paul, for a four-story stone block, 66 x 106, for Nicollet Avenue. It will be fireproof. Cost, 75,000.00.

Extensive improvements and alterations are planned for the Bank of Minneapolis Building, at 300-302 Nicollet Avenue, the first and second floors to be fitted over for a clothing company, at a cost of \$10,000.00.

A recommendation has been made to the State Legislature to appropriate \$75,000.00 for the erection of a new dormitory at the State Soldier's Home, at Minnehaha Falls, for wives, widows and mothers of soldiers.

The Holy Rosary Roman Catholic Church, Twenty-fourth Street and Eighteenth Avenue South, which was badly damaged by fire in December, is to be rebuilt along the former plans. Cost about \$60,000.00. Rev. Father Fowler, pastor.

Lakewood Cemetery Association will secure plans for a handsome and elaborate chapel for the cemetery grounds at Hennepin Avenue and Thirty-sixth Street. A chapel to cost \$30,000.00 to \$50,000.00 is projected.

The Minneapolis park board has held a competition among city architects on plans for rebuilding the pavilion for Minnehaha Park, the award going to a new architectural firm in the city, Downs & Eads, who secured the first and second places. The building will be 66 x 112, with an open dining terrace. There will be a concrete wall, cemented floors, stone coping, etc. Cost, \$10,000.00.

Wm. M. Kenyon, architect, has plans for an addition to the shops of the "Soo Line" in Northeast Minneapolis. It will be 123 x 132, brick veneered. Cost, \$50,000.00.

The board of education has asked authority from the State Legislature now in session to issue \$200,000.00 bonds for the erection of a high school to cost half, the remainder to be devoted to graded school buildings.

Wm. M. Kenyon, architect, has plans for remodeling the building of the St. Anthony Falls Bank at Fourth Street and Central Avenue, at a cost of \$10,000.00.

J. C. Andrews and E. L. McGrory have bought the Brunswick Hotel, Fourth Street and Hennepin, and will make alterations and new store fronts at a cost of \$4,000.00. Later on they contemplate replacing their entire building with a complete modern hotel.

Nicollet Lodge, A. O. U. W. No. 16, has plans in view for the erection of a \$25,000.00 building.

Bertrand & Chamberlin, architects, have plans for a very handsome building for the O. H. Peck Co., photographic supplies, who were burned out in December. The building will be on the former site, and will be two stories in height, with a white enameled terra cotta front. Cost about \$35,000.00.

SUCCESS ATTENDS INTELLIGENT CO-OPERATION.

National Cut Stone Contractors' Association Have an Enthusiastic Business Meeting and Social Affairs Are Not Omitted.

NEW YORK CITY, January 16, Hotel Astor.—Cut stone men from all over the United States gathered here to-day to attend the annual meeting of their association. When twelve months ago they gathered for the first time, they "built better than they knew," for the increase in membership and the general good feeling existing among the contractors in the association, covering territory from the Atlantic to the Pacific, has added enthusiasm to the efforts of the hundred and ten members, and a great future is expected of this organization. In fact, the working of this association has lent encouragement to not only those within the fold, but to those who have up to this time, not joined hands, and there is no excuse for any man in the cut stone business not becoming one of the body.

Owing to belated delegates and the enthusiastic exchange of greetings, it was 11:30, before President Isele called the meeting to order. Secretary Struble, with his assistant secretary, was on hand.

The first thing being in order the selection of a committee on credentials President Isele appointed a committee as follows: Henry Struble, D. A. Parker and G. A. Williams.

The roll was then called by the secretary and the following were found to be present:

THE ATTENDANCE.

ILLINOIS—David L. Tait, John Tait & Son, Chicago; Carl Stein, Stein, Ebertshaeuser & Co., Chicago; R. E. Harrsch, Henne & Co., Chicago; Henry Furst, Wm. Kerber, Furst-Kerber C. S. Co., Chicago, Ill., and Bedford, Ind.; E. Heldmaler, Chicago; Alex. King, Alex. King & Co., Galesburg; T. C. Diener, Chicago; A. E. Dickinson, Bedford & Co., Chicago; Pres. Chas. H. Isele, Peoria Stone and Marble Co., Peoria; D. Rily, Tomlinson-Rily Co., Chicago; L. D. Heusner, G. W. P. A. Michigan Central R. R., Chicago; Chas. Fanning, Furst & Fanning, Chicago; E. T. Lanham, Bedford Quarries Co., Chicago; Henry Struble, Hy. Struble & Co., Chicago; Chas. Walters, Perry-Matthews-Buskirk Stone Co., Chicago; Albert J. Ward, Edwards & Ward, Chicago; Chas. F. Dallmann, Dallmann & Stefan, Chicago; Master Wm. Harrsch, Chicago; John Mawer, Chicago; P. Kempe, P. Kempe & Co., Chicago.

NEW YORK—J. B. Gillie, P. B. Parker, South Dover Marble Co., New York City; Geo. N. Williams, Sr., Geo. N. Williams, Jr., and B. A. Williams, B. A. & G. N. Williams, New York City; H. Cope and Edwin Shuttleworth, Edwin Shuttleworth & Co., New York City; A. C. Schollinger, L. W. Dennis, Geo. Brown & Co., New York City; Jas. McLaren, Brooklyn; John Heinlein, Brooklyn; E. L. Bourst and E. F. Giberson, Wm. R. Bradley & Son, Brooklyn; Col. A. R. Baird and W. W. Baird, A. D. Baird & Co., Brooklyn; Jas. Ross, W. S. Ross, Brooklyn; Jos. Curran, Brooklyn; A. M. Orlando, Cleveland Stone Co., New York City; Geo. C. Moon, Macomber & Whyte Rope Co., New York City; D. M. Maxim, D. R. Bradley & Co., Brooklyn; F. W. Barr, Barr, Thaw & Frazer Co., New York; M. J. Morgan, Ohio Quarries Co., New York; P. K. Stephenson, Building Trades Employers Association, New York City; W. R. Logan, Carthage S. Co., Carthage; John Heinlein, Brooklyn; F. S. Dickinson, Bedford Quarries Co., New York; H. P. Binswanger Co., New York City; A. Schwarzenbach, Ingalls Stone Co., Binghamton; C. C. Ingalls, Ingalls Stone Co., Binghamton; Geo. K. Beddoe, Perry-Matthews-Buskirk Stone Co., New York; John Gillies and Jos. Gillies, James Gillies & Sons, Ravenswood, L. I. City.

MISSOURI—Chas. A. Pfeiffer, Pfeiffer Stone Co., St. Joseph; A. Sutermeister, Kansas City; H. F. Geotzmacher, Carthage Marble and White Lime Co., St. Louis.

RHODE ISLAND—Jos. P. Stone, Providence, R. I.

MARYLAND—D. M. Andrews, Baltimore.

MASSACHUSETTS—J. P. Falt, J. P. Falt & Co., Springfield; Mr. Parker, Webb Construction Co., Worcester.

NEW JERSEY—Chas. A. Grice, Geo. Anderson & Co., Ltd., Newark; Geo. Sampson, Sampson Stone Co., Morristown; Edw. Ball, Carr & Ball, Harrison; Alex. Frazer, Barr, Thaw & Frazer Co., Hoboken; A. G. Grice, Geo. Anderson & Co., Ltd., Newark; J. L. Brook, T. H. Pryor & Sons, Trenton; J. G. Spurr, J. J. Spurr & Son, Newark; E. R. Spurr,



CHAS. H. ISELE, PEORIA, ILL.

J. J. Spurr & Son, Harrison; Gilbert Brown, Geo. Brown & Co., Newark.

CONNECTICUT—Frederick DePeyster, Brainerd, Shaler & Hall Quarry Co., Portland.

NEBRASKA—Albert Schall, Omaha.

KENTUCKY—Edw. Peter, Peter-Melcher Co., Louisville; E. H. Defebaugh, ROCK PRODUCTS, Louisville.

OHIO—C. W. McCormick, Cleveland Stone Co., Cleveland; Albert Neukom, Toledo; H. M. Terrell, Malone Stone Co., Cleveland; Paul C. Searles, Cleveland; Geo. Parker, Malone Stone Co., Cleveland; J. L. Creswell, Toledo.

INDIANA—Geo. Dugan, Geo. Dugan & Co., Bedford; John A. Rowe, Bedford; J. E. Billingsley, J. H. Billingsley & Co., Indianapolis; John and Frank Ittenbach, G. Ittenbach & Co., Indianapolis; J. H. Billingsley, J. H. Billingsley & Co., Indianapolis; Howard L. Woody, Geo. Doyle & Co., Bedford.

PENNSYLVANIA—Geo. W. Shoemaker, Geo. W. Shoemaker & Co., Allentown; James W. Melville,

Berg & Melville, Allegheny; W. S. Callen, Morrison Bros. Co., Allegheny; Samuel Holmes, Allegheny; Wm. Morrison, Morrison Bros. Co., Allegheny City; Geo. Hogg, Geo. Hogg Co., Braddock; Mr. Hastings, Hastings & Morrison, Philadelphia; Reese Lindsay, Pittsburgh, Hastings & Morrison, Philadelphia.

VERMONT—Jas. Boutwell, Boutwell-Varnum Granite Co., Montpelier; Geo. Milne, Milne, Clarihew & Gray, Barre; Henry C. Whitaker, Rock Products, Barre; John E. Smith, E. L. Smith & Co., Barre.

WISCONSIN—A. P. Mischie, Gen. Cons. Co., Milwaukee.

LADIES—Mrs. Alex. Morris, Miss Anna Morris, Mrs. W. S. Callen, Mrs. Jas. Melville, Pittsburgh; Mrs. Albert Schall, Omaha; Mrs. E. L. Bourst, New York; Mrs. Geo. Hogg, Braddock, Pa.

The minutes of the last meeting were read and approved.

President Isele in his annual address introduced himself by saying that the delegates, when they returned from the meeting at Chicago were informed by their wives that it would have been a good thing to turn the hose on some one and then there would not have been so much talking by the president, but he wished to assure those present that it was due to enthusiasm over the effort of the association, and suggestions of the officers and others were not let drop on barren ground, but bore fruit.

The president's address was as follows:

PRESIDENT'S ADDRESS.

Gentlemen and Guests of this National Cut Stone Contractors' Convention: Inasmuch as the prime object of our association is to deal with and regulate the question of labor employed by our members, secondly, to promote and preserve the best things that are necessary to the success and best interests of the business in which we are engaged, I will endeavor to confine my address to these subjects principally.

We have gathered here for the purpose of celebrating the second birthday of the first National Association of Cut Stone Contractors in this most magnificent city of Greater New York, in the greatest state of the grandest country on earth; here we have assembled to apply our intelligence and wisdom for the up-building of our association launched at Chicago, but a short year ago; here we meet as business men, as associates rather than competitors; therefore, let good fellowship, social intercourse, and good will prevail. What is best in man for man and to man is the ideal, and that only is worthy of our imitation. The noblest attributes of man are characterized by deeds, words, and acts; by these alone can he be judged. Man exerts influence upon the individual, society, and his associates for good or evil. An organization, association, or individual whose principles are not founded on reason and justice soon becomes unpopular and a menace to good society.

First—I wish to speak for organizations or associations of men, rather than for the individual. Organization is possibly the word most familiar to you. A wise and just organization alone made Solomon's Temple a realization. For the government of organization, we inherit and enact laws as old and enduring as Mt. Sinai, therefore proper organization and just laws are indispensable to good government. All institutions, whether public or private, whether educational, religious, charitable, political, commercial or otherwise are built up, maintained and preserved by just laws and a wise and intelligent organization and are destroyed by unjust laws and organization devoid of reason and justice.

Organization has become very popular within the past year or so. It is only by national organization that we can meet or defeat national organization. Local organization is often stronger than the individual, but national unity means all for all. Let full organization concentrate all its energies upon the business of securing a strict enforcement of a just law or rule and it will succeed.

If, as has been stated at times, labor organizations were formed for the very laudable purpose of bettering the conditions of that class of our citizens who work at trades and other occupations for which they receive a stipulated wage compensation, and if such organizations were conducted along legitimate and proper lines which tend to enhance the pecuniary interests of men and to lift them unto higher planes of usefulness, and to improve their moral and social standing in life, we

would welcome them into our communities and favor them with much assistance and encouragement. But, unfortunately, one-twentieth of our population, claimed as an organization of labor, has been maintaining the principle that they shall destroy the natural and constitutional rights of the remaining nineteen-twentieths of our population.

Our organization, despite the subservience of demagogues, office seekers and weak employers, is going to try to educate our workmen that one-twentieth should not rule over nineteen-twentieths, and that the rights of all people are to be respected. I can see the day of the walking delegate, the levies of blackmail, and their attending strife and crime, passing by. Thoughtful employers everywhere realize the necessity of organization and of combating this tendency to inevitable destruction of business interests. To associate, to organize, to combine, to resist, and to enforce reasonable modifications of these unjust aggressions, fully justify our presence here, and any employing cut stone contractor who is not with us, stands in the way of his personal interests as well as of the business interests of the entire country in neglecting to join our association, which has proven and will prove effective as an agent for industrial peace and for mutual welfare.

Associations of employers have come and grown suddenly and rapidly as compared to the time required by labor organizations, conditions and necessity fully justify this fact. Organization and co-operation on the part of the employers is just as essential and necessary as it is on the part of labor. I mean, not to form combinations or cliques in league with labor organizations, but to relegate the misleading power to certain evils found in these organizations to the unpatriotic, chaotic depths from which they arose.

The question of labor to-day should receive as much attention on the part of the employer as any other detail of his business; in fact, labor is by far the greatest factor entering into the production and cost of cut stone, and if it is not given the deserved attention, it is bound to take its own course and there is no telling in the future as in the past where it will burst forth in its own peculiar and sometimes dangerous manner for it has struck more unexpectedly and irregularly than grandfather's clock. It is well, therefore, that each and every employer take this vital question before his too often dormant disposition in this matter, and through co-operation with other employers, keep it under control. It is surprising, but nevertheless, true, that many employers seem to know of and to understand these things only in a general way, and it is therefore necessary for such employers to unite with others who have given time and thought to the study of the question.

An association of employers should not stand for its particular rights alone, it should aid and assist in the enlightenment and improvement of the conditions of the employees; for many earnest and sincere workmen should be encouraged in their efforts to raise themselves to a higher plane in life, and if they are misled and use doubtful methods, it should be laid at the threshold of their unprincipled leaders. The suspicion with which your workmen look upon you is preached unto them by parties who are enveloped in a shroud of radicalism, or we might say, are carried away by their zeal and forget the rights of the employer and those of the public.

All my sympathies are for an honest and efficient workman, whether he works with mallet, hammer, pen, or spade, and for every attempt of capital or employers to oppress labor. I express only the severest censure. That workmen have a perfect right to organize and to protect themselves against unlawful encroachments and to advance their own highest interests, I freely admit. But workmen, as well as men who do not work, have no right to be lawless. If a man does not wish to work, he has a perfect right to throw down his mallet, hammer, pen or spade and leave the yard, mill, office or field. He has no right to interfere with another man who desires to occupy the place he has vacated. He has a perfect right to say how long he will work or for what wages, or as to whether he will work at all or not, but he has no right to dictate to his fellowmen upon these points. For him to do so is unlawful, is a crime, for in doing so, he seeks to deprive his fellow-man of life, liberty, and the pursuit of happiness, and tramples the Constitution of his country beneath his feet, and the heart of humanity in the dust, and he should be dealt with as a criminal.

The past should teach us one practical lesson and that one plainly, that the individual employer acting alone is unable to control the situation. Un-

der the old habit of no organization, the worst practices and methods of labor unions have increased steadily year by year. This statement is not intended to involve antagonism of labor as such but the fact remains that the aggression of organized labor, their unjust demands and practices are often enforced by crimes inflicted upon property and human life, which have depressed business and created a loss to both employers and workmen. The association of employers is the remedy that necessity has developed to correct this and other evils. As previously stated, no one man can stand out alone against the aggressions and onslaughts of the recent type of labor organizations. He must have the support of his local association backed by his national association. How can we expect permanent prosperity or peace so long as the union stands ready to pounce down upon any man who, by his individual labor and talents, has built up a business which might be profitable to himself as well as to his employees if left unmolested? Did you ever hear of a union that was not ready at any time to destroy their employer's business and put themselves out of employment simply to serve a selfish purpose, to satisfy their greed in one thing or another? While it may be true that all workmen are not sinners, any more than all employers are saints, the fundamental principle to be recognized at all times is the right of every citizen to freedom, entire independence in right doing, and the maintenance and preservation of law and order.

If the labor question was one which involved the mere organization of wage earners operating within the laws for the good of all men, it would not require much discussion, but it is the rule or ruin policy of unions, enforced by boycott, brass knuckles and dynamite, that has brought employers together, that requires employers to organize. We are here to-day to look after the employers' interests upon these questions and if we see to them properly, we will benefit not alone ourselves, but will benefit labor as well. If we can shape matters by educating our stonecutters to the fact that strikes, knock-downs, tie-ups, and walk-outs are useless to them as a part of their program of bettering their condition, we will have accomplished a good purpose and one mutually beneficial.

There are also many other abuses on the part of labor we should endeavor to correct. There is an organization of labor, to call it by a more general name, a general union, whose headquarters are located at our national seat of government. This organization has inflicted its rules upon employer and employee alike for many years, and its history reveals the fact that it has, in a measure, succeeded in destroying much that was good for the cut stone business by continually seeking and procuring what their organization calls personal advantages to its members at the sacrifice of their fellow-men, at the sacrifice of its own members.

This reminds me of a little article I read recently of an independent workman who was working at good wages on good work, but the professional organizer was persistent in trying to set this independent workman free from the unsuspected oppression of his employer. The independent workman did not wish to surrender his liberty or be coerced into this delegate's particular union, and for this he was unmercifully slugged. Think of the idea of slugging your fellow-men into a union in order to make him free, in order to better his condition! These are every-day tactics employed by the average unions. They demand that you surrender to them your tools, your shop equipment and they must run and control your machinery or the thing doesn't go. They propose to run it when, how and by whom they please. They don't propose to buy it, no! It is your business to buy this machinery and keep it in repair, they will then run it and do the rest, and if such an arrangement does not suit you, they will and have ordered your tools and equipment thrown out in the street. But, mind you, all the time you are expected to give them steady work. Can you conceive of anything more absurd?

Then again, they propose to tell you when, where and to what part of this free country you shall deliver the products of your yard or mill. At the same time you must hustle around and procure orders to be delivered to any particular point where this General Union has established a good or liberal branch or no branch at all. To make their system still more satisfactory to themselves, they propose a sliding scale of wages, but this scale is made to slide only one way—"UP." I hope you will all agree with me that these General Union propositions should be turned down right now without further debate and for the General Union's sake.

Personally, I am opposed to compelling any man to pay for or be required to carry a license in order to work, to make an honest living. All these initiation fees and license fees paid by American workmen ought to be applied as payment for a home, however humble. The men with homes are the salt of the earth, they are examples of the ideal citizen.

Picture to yourself a General Union stone cutter. He has a wife and many children; he desires to be with his family during all his leisure hours. He is what we might term a good father, for he has acquired a little home for wife and children, but there yet remains one or more payments to be made to free this humble home from debt. The father is strong of heart and faithful to duty. He works he will say for the home town stone contractor. He is satisfied with wages, hours and all other conditions, and has been paying dues and assessments in the General Union treasury for years, but now, one fine day there comes two buddies, "hoboes." They produce the necessary license and are put to work. After three days the owner of the yard makes a little mis-step upon some trifling General Union rule. A strike is called. The hoboes always strike first but all must quit. The hoboes go out and fill up with booze. This good father silently damns the union and goes home and weeps and wonders how long the strike will last and what might become of the little home when the mortgage is due and there is no money and no work. The strike lasts indefinitely, and father takes to drink or is compelled to leave the home and tramp to look for work. He fails to find it for a week, for two weeks, or more. He must work at his trade which he loves and understands. He finally finds work but in a yard that is on the union black list. He thinks of home and family; they need bread, the payment of the little home is past due. Now he has a choice of two—either violate those union principles by going to work or let his family starve and lose the home and stay on the bum, which most all good union men usually will advise him to do. If he goes to work, he is fined eighty dollars which he must pay or starve, for if he works to save his family he is forever denounced as a violator of those sacred General Union principles. There are many union enslaved fathers who have been made tramps, homes lost and mothers and children driven to starvation. Oh, what an example that teaches it is a crime to work! Has it not driven sons to crime and prison and daughters to prostitution, and all for the sake of upholding and preserving General Union principles unreasonable and unjust in many ways? Gentlemen, let us, if possible, save our American workmen from such a curse, inflicted upon them under the guise of bettering their condition, a condition that can not be controlled by laborer or employer, but by local or national circumstances, and conditions produced by general prosperity or by general depression of business and by the unalterable law of supply and demand, and not by labor or other organization.

Let me briefly review the cut stone trade for a period of twenty-five years or so, during which time I have been engaged in the business. I find that from year to year the wages of common and skilled labor have gradually and steadily been increased and our products were not advanced in price to the consumer. There has been some perceptible advance in price of raw material. The cost of lands, rents, taxes and general expenses in conducting our business have materially increased, and still the prices of our finished products have not been advanced. We have had to add additional capital to carry on our business from time to time. We have purchased and introduced costly machinery and other facilities to reduce cost of production, in all of which, and through all of which time the wages of the workmen were never reduced. The added facilities and machinery surely supplied more and steadier work, and also required many more workmen, and to-day we are selling cut stone cheaper and at a smaller margin of profit than ever before. Can anyone say we did not accord labor its just share during all these years? These same conditions with us will apply to men engaged in the cut stone business most everywhere.

Again, when we review this past, may we not ask what has labor done for us or rather "to us"? What have the stone cutters' unions done for themselves and for the elevating and benefitting of the cut stone business? I will tell you what they have accomplished. By their often and prolonged strikes and disturbances they have entirely ruined the business and driven to despair the men who have employed them, their benefactors. By their many strikes and walk-outs they have caused delays in

the progress and erection of buildings to such an extent that architects and owners found it necessary to greatly dispense with the use of stone for building purposes, especially in the West. In other words, the stone cutters themselves have been the means of introducing the endless varieties of materials, imitations and substitutes for stone, so that to-day the average genius in the building arts has learned that stone is no further a necessity for building purposes. It seems that the stone cutters themselves have been the means of converting the legitimate use and necessity of cut stone to that of a luxury. Cut stone is considered but a decoration in the building arts of to-day and the stone cutters of this country are entitled to the credit.

We have had many sleepless nights and days of worry trying to satisfy the demands of the stone cutters' unions, and at the same time keep the wheels of our mills and shops turning, and the time has come when we should take some steps toward bettering "our conditions." We have been doing and giving practically everything that labor has demanded, for without organization, without association, single-handed and alone, we were and are helpless. You are aware, perhaps, that all over the country many employers have been forced to discontinue dealing with unions at all in order to save their business and property, and wherever employers have organized and stood together, they have shown their ability conclusively to control and put a stop to the many abuses of ill-advised organized labor. During the past year or since the existence of our organization in the West, we have had no strikes in the yards of our members, to the credit of our organization and the conservative members of unions.

It is not necessary to dwell further upon what our association has accomplished, but I rather wish to impress upon our friends here that there are many things the unions did not do to us during the first year's existence of our association, and now, gentlemen, that we are more fully and better organized, and stronger by far than ever, let us exercise the greatest care and use this power wisely and with discretion. We must let no form of tyranny or oppression enter into our work or reformation or guide us in our acts. To practice moderation and deal justly with labor will merit the public confidence and approval, and with public opinion on our side, our association will grow greater and stronger day by day.

On the other hand, let us demand our own rights and insist upon securing them as guaranteed to us by the laws of our country. Let us adopt the noblest principles and stand firmly in their practice, individually and as an association. Let us stand shoulder to shoulder in defeating any objects that threaten our mutual industrial welfare and liberty. Let us look well to the needs and requirements of our association at all times. The power and influence of our association should never be diverted to the personal gain of anyone individually. Whatever we do as an association should be done by all and for all. In our ranks let us improve whenever we can. As we differ in looks, so are we created and constituted differently in habits, talents and capacity for business. Some men grow faster and become greater and share more graciously in this world's blessings. Always consider your neighbor is reaching out for the same plums, and if he gets there first, pat him on the back; your turn to be first may come next. In the direct benefits of our association we will all share alike. In business so in life, "the race is often swift and short," therefore:

"Build not your crown of selfishness and greed.

Think how short our span of life at best.

In the maddening race the goal to reach we lead

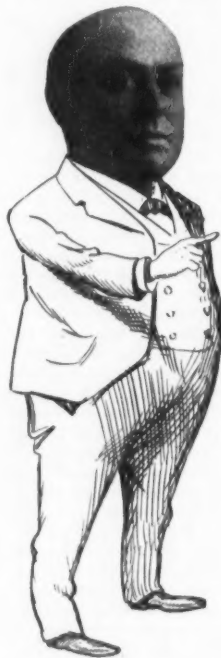
Passing by all earthly sunshine to find dark eternal rest."

In conclusion on this labor question, I may add that while some of us may favor no present day type of unions at all, and others still more may favor the true American plan, the open shop, I have tried to impress you with the facts, that our association is not desirous of inaugurating or waging a warfare or even discriminating against bodies of organized workmen, whether stone cutters or otherwise; but as an association it will become our duty and it will be within our province and power to prevent such organizations of men by their undue methods and unjust demands from destroying us or what yet remains good in the business in which we are engaged. I may also repeat it is only by complete organization, by our united efforts, that we are sure to successfully provide proper resistance, which we must and will exert at all times. And further, we

must remain organized as employers just so long as there is organization on the side of our workmen. Further than this, it is not my desire to make plans or frame policies that rightfully belong to my successor. Such is not the spirit of my closing address.

To strengthen and stimulate the efforts of our association for the greatest good to all of our members should be our aim and desire at all times. We should encourage the adoption and use of improved machinery as far as possible. Equipment means much for the success of the cut stone business. Inasmuch as our products are latterly considered as ornamentation and a luxury rather than a necessity, we can not advantageously advance prices. Good equipment will tend to reduce the cost of production, will find more consumers, and therefore stimulate the greater use of cut stone. Good facilities and up-to-date equipments will enable us to supply demands more promptly and better and will assure a more reasonable margin of profit on sales. Good facilities will increase your output and give more employment to labor.

I am heartily in favor of trade schools. The poor man's and the middle man's sons who have no special talent for a profession and no love for arduous studies, are quickest and best prepared to fight life's battle if they attend a trade school and learn a trade. In supplying cut stone men with more workmen, we should give every opportunity and encouragement to employing and teaching appren-



HENRY STRUBLE, CHICAGO, ILL.

tices. We should reserve the right to employ such a number of apprentices to learn the stone cutters' trade as we deem best for us. We should reserve the right to determine the length of time for our apprentices to serve. We should be the sole judge of their efficiency and their earning power. We should teach our young men the importance of learning a trade well, and to practice diligence and efficiency; these alone will merit the receiving of the highest wages and these acquisitions are far more essential than a working card or license issued by a labor organization.

The foreman or superintendent whom we employ in our yards or mills should be a man in whom we can place with confidence all matters pertaining to the management of our business and such a man should not be compelled to subscribe to a membership in an organization whose methods and principles are entirely antagonistic to our best interests. We should in justice to ourselves and to the efficient, loyal, and reliable workmen we employ, establish and maintain a labor bureau and should give preference to the skill, efficiency, and capability of workmen. We should classify our employees as to their value as workmen and provide and establish an equitable wage scale. The best men should receive the highest wages. By such a method we would create an incentive to the less skilled workmen to become more proficient.

These, with many other forms and reforms, we

should consider and adopt from time to time as ability and necessity may demand. Let us maintain all of our local associations; these, if properly conducted, will add greatly to the success of our national body, and, whether in local or national association, let us constantly cultivate and promote those friendly relations I have already mentioned and which are so necessary and beneficial to business men and especially to competing business men. Let us at all times bestow and extend every possible courtesy as due each other. Let us learn to know each other better by personal contact as often as possible. Social intercourse and good fellowship will obliterate many petty jealousies and heal many sore spots. It will help to make our daily business life more pleasant, as well as more profitable.

My sincerest thanks are due each and every officer, committeeman and member of our association, all of whom so cheerfully contributed their time and assistance to me in the discharge of my duties during the past year and to whose tireless energy and wise counsel alone is due the prominence and success so greatly attained by our association. This same energy and zeal and devotion on the part of our members and officers, I earnestly and sincerely trust will be accorded my successor. I desire to thank every gentleman here for his presence and hope our deliberations in the transaction of our business during this convention will be of the most pleasant character and exceedingly beneficial to our association and to our members.

Secretary Struble then made his annual report, and in the absence of the Chairman of the Executive Committee, President Isele reviewed the work of the year and told of the work done by the Executive Committee in Chicago, and as an illustration of their efforts called attention to their agreement printed in the January issue of Rock Products embracing the notice to employes which was to be put up in the different shops of the association, which was most satisfactory to all present. The meeting then adjourned until 2:30 p. m.

WEDNESDAY AFTERNOON.

President Isele called the meeting to order. The Committee on Finance through Chairman R. E. Harrsch, of Chicago, asked for further time. The Committee on Membership through Mr. R. E. Harrsch further reported that the membership work had been up to the secretary, he being the whole thing.

Mr. James Melville reported that the special committee appointed by the executive committee to visit New York had done so, and told of the efforts and success in securing the co-operation of the New York cut stone men, and their invitation to meet with them and said: "I am sure we were entertained very handsomely and they made life pleasant for us. They were very desirous of having this meeting here to-day and I am sure that the heartiness of the invitation and the wisdom of coming here will be demonstrated in the excellent work we are doing."

Mr. E. F. Giberson, chairman of the Committee on Auditing, stated that the report of the treasurer was in good condition, and any recommendation the committee might have would be made at a later session.

The quarrymen's committee in the absence of Chairman Lederer, was responded to by President Isele and told of the executive session in Chicago and how the quarrymen in Chicago, including the Bedford Quarries Co., Perry-Matthews-Buskirk Stone Co. and the Cleveland Stone Co., gave assurance of their desire to aid the cut stone men in every way possible, and use their special efforts to bring members into the association. The president eulogized these gentlemen and thanked the quarrymen for their efforts in behalf of the association and said if there were any matters that were to be taken up for discussion, they would be brought up under the head of "new business," which was entered on the program.

The treasurer then made his annual report which showed a nice balance on hand of \$333.25 with a membership of 105 members, and one or two of the members present said that as the association needed the money there ought to be more of it in the treasury, and on motion of Mr. Harrsch the Committee on Finance was appointed to take this matter up for consideration and to make their report to-morrow, after discussing the necessities of the association.

The Secretary's Report was Read.

He went into the history of the association, stating that Mr. George Dugan, of Bedford, urged his starting the association, and after considerable effort the meeting at Chicago was the outcome. The success of the organization, including something like 110 members located in thirty-six cities, tells the story and reminds one that, as the president puts it, "How fond a mother is of her first-born babe, so is our excellent secretary imbued with the same feeling." The secretary further said: "We secured our members now mostly by correspondence, but there is a list of 310 people who ought to be in the association, and perhaps more, and it is necessary that the individual members of this association do their part towards aiding and bringing them into the fold, as it is members that we need."

It was moved by Mr. John Ittenbach that recommendations of the secretary be adopted, and following this report there was some discussion among the quarrymen as to selling to carpenters and others who are not cut stone contractors, and along this line the secretary said: "While our good friends, Mr. Dickinson, Mr. Walters and Mr. McCormack have always evidenced their desire to co-operate with us in every way, there are many quarrymen who have not done so in the past, and it seems to me this matter should be discussed and some action taken in order to get the matter in form for the committee." Mr. E. F. Garber moved that a new committee of seven be selected to confer with the quarrymen and report their recommendations to-morrow afternoon. Col. Baird seconded the motion.

Mr. L. G. Fanning, of Chicago, said he thought it would be a good idea to get expressions from those present to the committee would have something to work on.

Mr. J. E. Billingsley, of Indianapolis, remarked: "Some of us have suffered from orders taken by illegitimate competition, or Jim Crow quarries. It seems to me that we ought to get the co-operation of the quarry operators."

Mr. Ittenbach remarked: "It seems to me that we can take this up with some prominent quarrymen and a local quarry association, and some plan could be worked out for the benefit of all concerned."

Mr. Pfeiffer said: "This is a very difficult matter to control. It seems to me we ought to perfect our organization first. While many of our friends, the quarrymen would no doubt be glad to co-operate with us, there are too many cut stone men outside of the association to do this yet. I approve of the suggestions, but do not let us make haste too swiftly."

Mr. Struble said: "If we do not start, we will never get together. Our interests want to be respected by the quarrymen, and there is no way like getting together to bring this about."

Mr. Reese Lindsay, of Pittsburg, said: "We can only speak from experience. We had a case in Pittsburg where a \$400,000.00 job was taken away from members of our craft at 30 per cent. below the quotations made by our people. Of course it may have been a case of special contribution to a church or something of that sort, and this class of competition causes cheap prices and we must have the protection of the quarrymen if we are to stay in the business. Our profit comes mostly from the material handled, not from our labor, and if we lose this important item in our business, how are we to remain in our trade?"

Mr. King, of Galesburg, said: "The cut stone contractors buy 80 per cent. of the stone. If we can not effect a plan with the quarrymen we must refuse to buy from the quarrymen who prefer the trade of the general contractor and Jim Crow carpenter, to that of the legitimate cut stone contractor who is in the business." He cited a case where he and his competitors had suffered from this kind of competition and thought his committee should get together to work out plans which would be good for all and do no one any harm.

President Isele then appointed a committee as follows: Col. A. D. Baird, James McLaren, John Ittenbach, A. P. Mischie, Reese Lindsay, R. E. Harrsch and Alexander King. There were some comments as to the old man being nominated for the committee, Mr. Pfeiffer saying that he was one and Mr. Harrsch tried also to slip into the old man's column, but the president called for order.

Communications were read from several of the local clubs in the quarry districts and their rules adopted by the committee with reference to planer men.

A letter was read from Fred Andres, of Milwaukee, at Denver, tendering his resignation to the executive committee, owing to his inability to be present, but assuring the members of his thorough

loyalty to the association and his desire to co-operate when present activities would allow.

A letter was read from Mr. J. B. Clark, the Poet Laureate of the association, expressing his regrets at not being able to attend. Mr. Clark happened to be in Florida at the time but sent in his report in poetry as follows:

EXHORTATION.

BY J. B. CLARK.

We do not wish to move the world,
Or make her wobble in her sphere;
We only want the rights of man,
For to all men those rights are dear.

We do not wish to wave the torch,
Or dye the ground a crimson hue;
We only want our legal rights,
For to all men those rights are due.

We've no desire to crush men down,
To fill their souls with hate or fear,
We want all men to stand erect,
And in their dealings be sincere.

This discontent that fills the land,
Perchance foretells great civil strife,
And should the Crimson demon come—
We must at least get life for life.

But in our disunited state
All victims to the common foe;
It matters not how brave we be,
Down to the earth we're sure to go.

Then let us build in every state
A Union solid as the rock;
That we may aye defend our rights
And stand unmarred through every shock.

Come rally to the clarion notes
That ring in every Freeman's ear,
Present a strong united front,
And Unions—Hell shall disappear.

Mr. P. B. Parker, president of the South Dover Marble Co., New York City, extended an invitation to the delegates, to an excursion on a special train at 9:30 o'clock, Saturday, to South Dover, to look over the marble quarries of this company. He said: "If you will do us the honor of accepting this invitation, we will endeavor to make the trip pleasant." This was accepted by acclamation.

Under the head of "New Business," the suggestion was made that the financial matters be taken up, and on motion of Col. Baird, the secretary's and treasurer's reports were referred to the finance committee for their discussion and report at tomorrow's session. This was passed unanimously.

On motion of Mr. Harrsch, the chairman of the Committee on Finance, the president was given the power to enlarge the Committee on Finance to five members pro tem. The committee then stood as follows: R. E. Harrsch, chairman; George Dugan, G. N. Williams, Gilbert Brown, E. F. Giberson.

Jos. P. Stone, of Providence, R. I., suggested that the dues should not be too high, as members are what the association needed.

Mr. King said: "What are we going to do about Boston and Philadelphia?" Some one said, "Invite them to join."

The meeting then adjourned until 10:00 a. m. Thursday.

THURSDAY MORNING.

The meeting was called to order at 10 a. m., the first thing in order being the report of the conference committee with the quarry owners, which was to discuss matters of interest to the quarry owners and report this morning. The recommendation of the committee was that as there were so few quarrymen present there was no possibility of settling the matter, not from lack of co-operation of the quarrymen present, but due to the desire to discuss the matter with the quarrymen in all sections of the country, and the committee recommended that this matter be placed in the hands of the new executive committee for action at a later date.

On motion of Mr. Schall, this recommendation was approved.

The secretary being out of the room doing hard work on some committee on motion Mr. King was asked to take the secretary's seat until he arrived.

Mr. Reese Lindsay said he wished to square himself with the quarrymen present by stating that none of them were responsible for the case in Pittsburg that he had referred to in an earlier session.

Mr. B. A. Williams suggested that it would be valuable to all concerned if the chairman would ask the representatives present to report the business conditions in their sections, also prospective trade conditions as well as what their labor relations were, and said: "It seems to me this information should be exchanged between the members at all times, as then we could keep track of the progress of the business. We want to grow as an association, and it seems to me these reports will encourage us to do so."

The president remarked that he favored the suggestion, and said: "As our association now embraces many of the best men in the business, employing more men and using more stone in consumption, the closer we get together, the better."

On motion of Mr. Melville, seconded by Mr. Pfeiffer, the chairman was asked to request the individual members to give reports of the business conditions. As the matters in question were of great interest to the membership only, they will be sent to the members direct from the secretary's office.

The meeting then adjourned until 2:00 p. m.

THURSDAY AFTERNOON.

Chairman Harrsch, of the Committee on Finance, suggested that it would be a good idea to refer the deliberations of this committee to the executive committee, and the committee insisting on receiving report, the report was read recommending that the dues be increased to \$30.00 per annum, and that the secretary be paid \$1,000.00 per year and expenses for the conduct of the office.

Mr. Lindsay moved that the report be received and made a part of the record and be taken up for discussion. This was seconded, but Mr. Pfeiffer suggested that \$30.00 is not enough, but would be all right for a basis, charging additional for machinery employed by the contractors.

Mr. Billingsley agreed with Mr. Pfeiffer. Mr. Baird thought \$30.00 too small and moved to make it \$100.00 for contractors with one planer or more, and \$50.00 for factories not employing machinery. This motion was seconded by Mr. Wm. Kerber, but afterwards withdrawn. Mr. Stone moved to make it \$30.00. Mr. Lindsay suggested that it would be a large tax on a town with only one man in it.

Mr. King suggested that those members employing two sawing machines and two planers pay \$50.00, and those not employing machinery, \$30.00.

Mr. Pfeiffer remarked: "We must have money, for with a good man as secretary, we can accomplish a great deal more. Mr. Struble can not give even a share of his time for the money suggested. Let us grade the amount of dues according to the valuation of the business done, or by planers or saws, but we must pay our secretary well."

After a number of remarks on the same lines, a suggestion was made that the meeting should not be too radical, and the secretary made a little talk, illustrating very well the fact that members were wanted mostly, and said that while money was a necessity, it is better to have 300 members at \$30.00 each than 100 members at \$50.00, or \$100.00. Therefore, on motion of Mr. Baird the recommendation of the Committee on Finance was approved, seconded by Mr. King and passed.

The next thing in order being the election of officers, the chairman appointed the Nomination Committee as follows: Col. A. D. Baird, John Gillies, R. E. Harrsch, Henry Furst and A. P. Mischie.

The meeting then adjourned for fifteen minutes to hear the report of the committee.

On re-convening, the Committee on Nomination reported their selection for officers of the association as follows: Chas. H. Isele, Peoria, Ill., president; G. N. Williams, Jr., New York City, first vice president; George Dugan, Bedford, Ind., second vice president; Henry Struble, Chicago, Ill., secretary; Jos. W. Melville, Pittsburg, Pa., treasurer.

The following were selected for the executive committee: Gilbert Brown, Newark, N. J., chairman; E. L. Giberson, New York City; Albert Schall, Omaha, Neb.; John Ittenbach, Indianapolis, Ind.; Ernst Heldmaier, Chicago, Ill.

Mr. Lindsay moved that Col. Baird be empowered to cast the vote of the association for officers and members of the executive committee as reported by the Committee on Nominations. This was passed unanimously. Col. Baird carried out the instructions of the meeting.

On motion of Mr. Lindsay a vote of thanks was extended to the retiring officers for their excellent efforts in the work during the past year.

President Isele, in accepting the office for another year said: "I can't say that I am as glad to receive this re-election as I wish I could. Last year I was away from my business for three months on account of ill health, and really my business requires more of my time than I can give to it, but I thank you for your hearty re-election and will try to do your bidding to the best of my ability. I am sorry you did not suggest a man as I suggested, as it seems to me there ought to be a division of the work, but since you have seen fit to re-elect me, I ask your sincere co-operation in the working out of fair lines which will be beneficial to the cut stone men and their employees. This has ever been my aim and I am sure it will mean greater success for our organization. In asking your co-operation, I also ask you to aid in increasing the membership of the association; ask your neighbor to join us. We need the influence of all the men in the business. It is personal contact that makes men strong and helpful to each other. Therefore we should do all in our power to gather our brothers into the fold, and I trust that our friends from Canada will be asked to join."

Col. Baird then remarked that he had signed a little paper that would perhaps interest some of the members, to help increase the working fund for the efforts to be put forth by this association.

Mr. G. N. Williams thanked the meeting for his election as first vice president of the association, and assured those present that he would do his best to co-operate with other officers and aid in the building up of the association.

Mr. George Dugan thanked the meeting for his re-election and said he would use his utmost endeavors to fulfill the trust imposed. "This organization is a necessity, and as a child must creep before it can walk, by increased individual effort we can soon make this association walk."

Mr. Struble remarked that he was not as glad he was re-elected as he might be, because he is a busy man. "I am either a good secretary, or there are some excellent prevaricators among the men who urged me to take this position a year ago. However, I will do my best, with your assistance, and will try to increase the membership and make the association the best possible." He spoke of the men in territory outside the fold they had been working on up to this time and hoped to have their co-operation soon.

A committee composed of the Milwaukee Board of Trade invited the Cut Stone Association to hold their next annual meeting at the "Cream City."

On motion, the selection of place and date of the next meeting was left in the hands of the executive committee.

A banquet was then announced for 8 o'clock this evening.

The president said: "I would like to hear from anybody present who thinks this has not been a satisfactory meeting. I would like to know if everybody has been treated fairly, and I hope you will not be bashful in speaking up."

Mr. Stone moved that the thanks of the association be extended to the gentlemen representing the Bedford Quarries Co., Ohio Quarries Co., the Perry-Mathews-Buskirk Stone Co., and the Cleveland Stone Co. for the buffet furnished for the refreshment of the delegates and the many courtesies extended to the individuals present.

This was passed with enthusiasm, and the meeting adjourned.

THROUGH THE STONE PLANTS.

The courtesy that was shown the boys through-out the convention by the quarriers before mentioned was continued Friday afternoon when all that could be gotten together at that time (twenty-three in number) were taken in tow by G. K. Beddoe, New York representative of the Perry-Mathews-Buskirk Co., and given the freedom of Greater New York's transportation facilities through the apparently bottomless pocketbook of the company.

Mr. Beddoe proved to be as good a guide outside of the Astor as he was inside of it and the rest of us behaved so well that some of the natives thought that we were the police commission on a tour of inspection. Our first stop was over in Long Island City, where the conductor threw us off in front of the up-to-date stone working plant of

James Gillies & Son. Mr. Gillies was absent but the superintendent showed us all the sights. The plant is equipped with all modern machinery, and being located on the water front, the firm has a dock of its own at the very back door of the mill, and its transportation facilities are thereby made all that could be desired. Besides all the other evidences of progress we found that the firm had just purchased one of the W. F. Meyers new diamond saws at an expense of about \$4,000.00, and we were also fortunate in finding Mr. Meyers himself superintending the work of setting it up. This is the eleventh machine that Mr. Meyers has built of the improved pattern, and the mechanism was therefore new to most of the visitors.

It would be out of place at this time to go into any technical description of the machine, but a few of the practical features may well be mentioned. It makes a cut perpendicularly and the saw can be moved to any place at any instant without stopping it. It can be operated at any speed from 2 inches to 16 inches per minute, by moving the disk, and the speed may be changed while the machine is running. Every bearing on the machine is brass lined and self-oiling.

Mr. Meyers had just returned from Lynn that morning where he sold one of the machines to the Donnelly Co. A few days previously he sold two of them to Norcross Bros.

After having done all the looking we could at the Gillies plant we next went to the Meyers machine plant, which adjoins, and there witnessed something that few, if any of the bunch had ever seen before; the process of setting the diamonds



GEORGE DUGAN, BEDFORD, IND.

in the teeth for the saws. This we saw from beginning to end, the steel melting in the furnace; the setting of the diamonds in the molds; the pouring in of the molten steel around them; the opening of the molds, and finally the teeth grinding upon the emery until the diamond shows through with proper projection from its tenacious bed.

We spent a long time in the Meyers diamond room with the result that we had time to visit but one more stone plant before the sun went down. Mr. Beddoe, therefore, took us back to Manhattan again, and up to the big stone plant of B. A. & G. N. Williams, at Avenue A and 68th Street, where we were met by James B. Gillie, of the New York Stone Co., the same whole-souled gentleman who afterwards took the boys to the South Dover marble quarries. He showed us through the Williams plant where pneumatic tools, turning lathes, diamond saws, circular saws, planers and everything else that modern genius has devised were seen in operation.

The machine that interested us most was the immense Shaw traveling crane that operates in the yard between the two long sheds. Superintendent Albert Meader informed us that the crane had a 72-foot span and a track 290 feet long. Mr. Gillie showed us some columns from the South Dover marble quarries that were 22 feet long and 3 feet 6 inches in diameter that were being turned on the lathes. They are intended for the Harmony Club Building. There were also some very artis-

tically molded bases of the same material that are for the Dr. Parkhurst Church. Just as we were about to leave we met Mr. Dickinson, of the Bedford Quarries Co., with another party of Westerners and we surrendered the place to them while we went back to see what might be doing at the place where you get the best high-balls.

It was a highly entertaining trip and it was a source of great satisfaction to the Westerners that, although they could admire the progression of their New York stone friends, their plants were not ahead of their own.

THE BANQUET.

The main social feature of the cut stone contractors' meeting in New York was the annual banquet. The diners, making up practically 100 in number, enlisted among the attendance at the meeting, were shown their seats by the local committee, which was composed of Col. A. D. Baird, chairman; E. F. Giberson, P. B. Parker, New York City; Charles Walters, Chicago; Edward Spurr, Harris, N. J.; Gilbert Brown, Newark, N. J., and A. E. Dickinson, Chicago. The banquet was held in the large banquet room at the Hotel Astor. The surroundings were beautiful. Some idea of the affair is given by the beautiful flash-light picture. The speakers were at the toastmaster's table, and Col. Baird, who presided, did it admirably from his lofty position among us.

Buffet Russe	Cocktail
Huitres	Amontillado
Consomme de Volaille aux Quenelles	
Olives Celeri Radis Amandes Salces	
Kingfish a la Meunier	
Concombres Pommes de Terre, Chateau	
Haut Barsac 1900	
Selle de Mouton Canadien, Portugaise	
Haricots Verts	
Ris de Veau Pique aux Champignons Frais	
Sorbet Cardinal	
Pigeonneau Roti sur Canape	
Salade Escarole	
Pommery & Greno Sec.	
Pouding Nesselrode	
Petits Fours Fruits Assortis	
Fromage	
Cafe Noir	
HOTEL ASTOR	
VENDREDI LE 20 JANVIER 1905	

I am sure that you will agree with us that the local committee did itself proud, for, with the beautiful banquet room, the decorations of flowers, the two hours spent in social converse in trying to get even with the hosts of the occasion, there was nothing left to be desired. We were made happy from time to time by sweet music which was furnished by the Jersey City Quartette, of which D. M. Maxin, of the E. R. Bradley Co., was the leader. So that when we all got a bunch of cigars and ready to hear the speeches President Isele rose and introduced the toastmaster, Col. Baird, as an angel of peace and one of the pioneers in the cut stone business.

Toastmaster Baird then thanked the delegates for coming to New York for this meeting. He said, "Glare and glitter are not all we have here in New York, and I hope you will all have a pleasant time while here. I know the West has many good stone men who are welcomed most heartily, especially at this time of the year when it is hard to get them out, owing to the fact that stone cutters are subject to rheumatism." The Colonel then spoke of the financial condition of the association and assured them that the committee in charge had done a noble work toward special efforts for the future, and said he was sure that stonecutters did not talk long without doing things.

The President's Remarks.

The toastmaster then turned the tables and introduced President Isele, of the association, who said, "If I was a good speaker as well as a stone cutter I would get along very well, but feel often the wish for more knowledge of my own business. You will find organizations in all lines, and I am proud to say that we have one of our own. I believe it will be the means of eliminating much of the trouble we have experienced in the past. As to the achievements of the association I say we are not here to advocate slugging or to do an injustice to our workmen. We are not meeting here to-day as competitors, but as business men and friends, and unless you know your competitor no friendly feeling exists between you, but after a few meetings like we have had in our association we have a better opinion of one another, and, therefore, become friends and secure better results out of our business. Having an organization of our own we may be enabled to get the co-operation of our men and see that reciprocity exists. One of the first things we need is more apprentices and that will mean more expert work. We thank you all for your presence and especially our local friends for the effort they have made to make our stay profitable."

The Center is Located.

Mr. George Hogg, of Pittsburg, who was the next speaker, said: "I see I am down for the subject of 'The Independents of Pittsburg.' Now, I think it is a rank injustice to confine this subject to Pittsburg. Independence does stand for Pennsylvania. Pennsylvania means Braddock and Braddock is the center of the universe, for I never had any money until I went to Braddock. Some comments have been made about the independents of Pittsburg, but they are not always true. My estimate of truth is law and order. I stand for it up until midnight, but not after, provided my wife is not along. Then it is independence." He elaborated on the subject of independence to some degree. "Evidently some of our friends in Philadelphia did not look at it the same as we did, for instead of co-operating with Pittsburg they have done the opposite."

Mr. James W. Melville, of Pittsburg, was then called upon for some Scotch songs and wound up with "Bonny Scotland Forever," and Col. Cobb received the applause of Upper Broadway.

Both a Thinker and a Talker.

Mr. R. E. Harrsch, whose subject was "The Independents of Chicago," was introduced as "Chicago's best." He remarked that his speech was the same as Mr. Hogg's, only worse. He then told a very funny story and said he was sure that the gentlemen present would appreciate the fact that he was a fine thinker but a poor talker. However he convinced the audience otherwise, for he told of the experience of the builders supply trades

council in Chicago and the emancipation of the cut stone men in that city, which was interesting to all, especially when he came to the story of the strike and brought out the fact that the men of experience in the business aided Brother Heldmaier to start his stone yards up first. They took off their coats and neckties and made it go, through the help of the men who own their own homes and never wanted to strike, because they thought their employers in the cut stone business in Chicago had been true to them, but all were open shops now and things were peaceful.

New York Crowd Believe in Association.

Mr. George N. Williams, Jr., of New York, when asked to respond to "Greater New York Cut Stone Contractors' Association," said: "Speaking for the Innocents of New York, the youngest association, I am glad to tell you we joined the national in a body. We are glad the movement was successful, and I feel that to-day the tide has been turned, for by keeping the reins of this association in the hands of the present officers I am sure that the association has the sympathy and co-operation of the local association. It seems to me that local matters should be controlled by local bodies, but there are many matters of general interest that should be handled by this association, and I am sure it will be done well. We want all the members of the trade in this association, and I am sure we can depend on the individual to do his part to convince those outside of our association that our aims are right and it will mean justice to ourselves and our employees. It is much easier to get the co-operation of our brother cut stone men by convincing them of the fairness of the association in their efforts toward all concerned. "The man who is convinced against his will is of the same opinion still," but the man who is led to believe in the integrity of our organization will add much to its strength when he comes with us. This has been a most happy meeting, the meeting of the men from the woolly West and the effete East."

Large Membership Needed.

Secretary Henry Struble, of Chicago, was asked to respond to the toast, "How to Keep the Association Moving." Mr. Struble spoke of the efforts of the association and the co-operation of many of the members and brought out the fact that this was the birthday of the association, having commenced with thirty-four members and tonight is the realization of its success, being one year old with 105 members. He said further, "I am sure all are glad to be present to-night and glad of the fact that our association covers something like sixteen States, and with all the enthusiastic delegates present, it should be beneficial but we need members and we solicit the aid of all present to help increase the number."

Pledges the Quarrymen's Co-Operation.

Mr. C. W. McCormick, of Cleveland, responded to the toast, "The Relationship Between Quarrymen and Stonecutters." Mr. McCormick thanked the toastmaster for the honor of addressing the "builders of the nation, the men the world must depend on, for the ability of your craft insures the artistic and well built structures of our nation. I congratulate you on the success of this meeting and especially upon your moral courage to uphold the good business methods. I am sure the quarry operators are anxious to aid you in your undertaking to work out plans that will do justice to all concerned. Organization of this character will bring out confidence between men and insure patriotism to our country as well as to our business. I have been delighted to hear the principles of your organization, as especially brought out by the discussion we have had to-day. It is a pity that they can not be distributed among all your men and that they can not be read all over the world."

Brownstone and the Walking Delegate.

Frederick DePuyster, of Hartford, Conn., responded to the toast, "Brownstone." He said: "Brownstone had much to do with the building operations of the past. It seems to me that if organization had been conducted on proper lines in the past the walking delegates would have taken to the woods." He told several stories illustrating the condition of the business, bringing out the fact that organizations are all right. They come and go and if they are not loaded up with rainbow tours like the union's walking delegates they will be successful.

Upon the Subject of Apprentices.

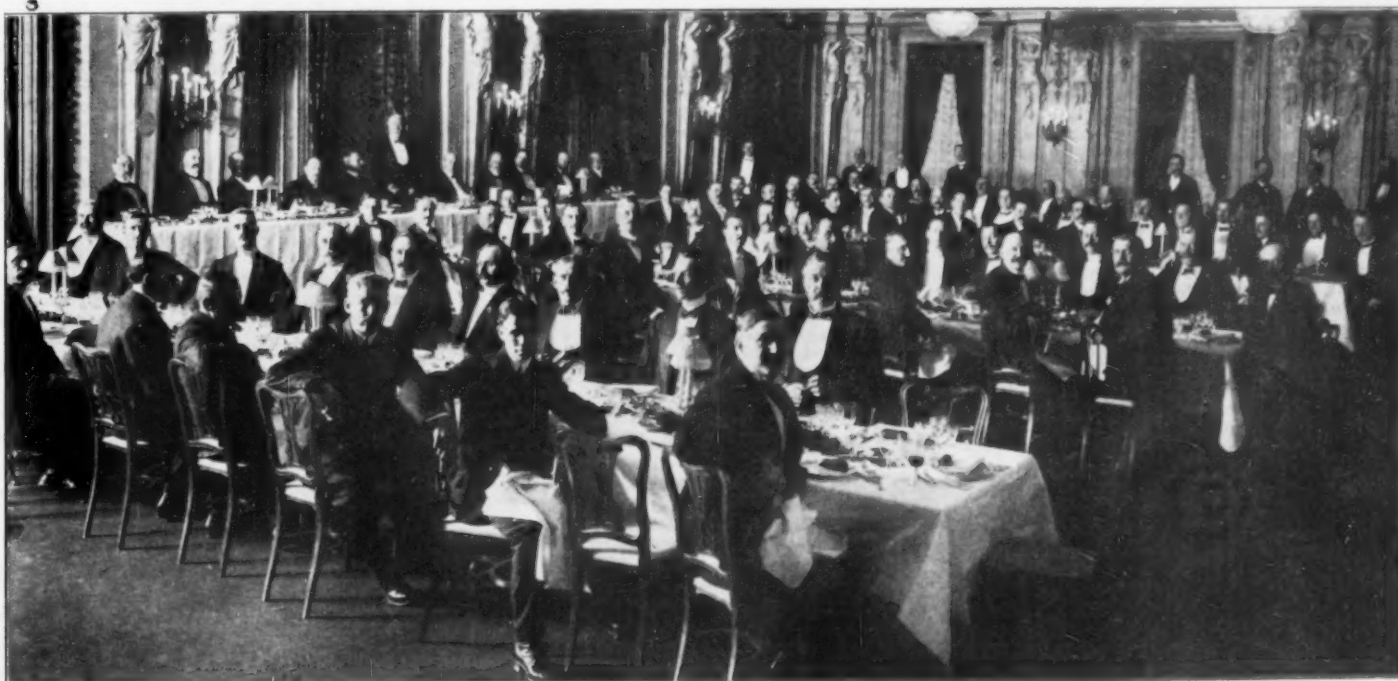
Mr. Chas. A. Pfeiffer, of St. Joseph, Mo., then made an address on "Apprentices," which was a work of art.

ADDRESS BY CHARLES A. PFEIFFER.

Mr. Toastmaster and Gentlemen—Since my arrival here, I have been requested to write a few lines upon the subject of apprenticeship as the same applies to the trade of stone cutting, and while complying, regret the short period allowed me for preparation upon a subject fraught with interest to the trade and of special concern to us at this time.

Apprenticing boys to learn them the trade of stone cutting, at one time years ago a common practice, is to-day the exception in the United States, largely owing to the restrictions placed upon the number of apprentices allowed each stone yard by the Journeymen Stonecutters' Union.

The only argument I have heard advanced by the general union members in support of their open opposition to a construction of more liberal rules in this direction, is that by their method of control they prevent the augmenting of work-



THE BANQUET OF THE CUT STONE CONTRACTORS, HOTEL ASTOR, NEW YORK.

men to their ranks, limit the number of available men to a minimum, and this diminishes the supply of stonecutters, arguing that by this method of reducing the number of stonecutters in the market, they necessarily will obtain higher wages for themselves.

Assuming that their method of calculation is correct, that wages are regulated by supply and demand, and more particularly by the stipulations of the general union, is the result of their opposition a scarcity of stonecutters of any material advantage to the workman now engaged at his trade? I can not see that the union's opposition to the apprenticeship system alters the situation so far as competition on the labor market is concerned, and this is the case more particularly in the seaboard and other large cities where the demand for stonecutters is largely supplied by the influx of the foreign element, attracted to this country by the higher rate of wages obtained here; the consequence being that the less home grown timber we supply, the more foreign material (labor) will be brought into the market.

By their reckless method of limiting the number of apprentices in stone yards to but a few boys, they rob the youth, possibly the son of a stonecutter of the opportunity of learning a trade, both honorable and remunerative, and force him into channels of labor less desirable, are bringing about a condition which is detrimental to society and good citizenship, obliging us to give employment to the foreigner for lack of native born workmen. The latter, more in sympathy with our institutions, and our form of government, more congenial to our methods, conversant with our language, more appreciative of the needs of the time, the progressiveness of the age we live in, and intelligent and bright enough to cope with the questions at issue, one with whom we can work hand in hand with and who can understand that our interest is his benefit.

It behooves this association to bend its efforts in this direction, encouraging the employment of apprentices, taking as many as they can give steady work to and good supervision. Some few of the larger yards employing many stonecutters, employing a separate foreman, an instructor who can give his undivided attention to the advancement of the apprentices, not obliging the boys to perform any manual labor except that to be performed in the learning of the trade. Let the bosses use care and judgment in the selection of those who are applying for apprenticeship—put them to work some weeks on probation—have the foreman pay strict attention to the boy, notice if he has a knack or aptitude for the trade, and if he is unsuited so inform him. It is far better for an unskilled boy to learn of his inaptness, than to find out later that he is but a poor stonecutter. On the other hand if the boy shows a fitness for the trade, a liking for his newly adopted occupation, give him all possible assistance and encouragement; don't let him forever joint window sills, door sills and ashlar—give him rough stock to work on—make him cut a clean draft and take a stone out of wind, let him learn stonecutting from the bottom up as our fathers learned before machinery came into common use—advance him as rapidly as possible; under separate supervision you can do this effectively. Give him successively a better class and more difficult work, and mark my words, it will not be necessary to apprentice the boy for four years or six years as was the custom fifty years ago in the old country. Do this, and you will, if you, in addition, select able bodied and healthy boys of about seventeen years, have able bodied first class stonecutters whom you can and should pay the journeymen's wages at the end of three years of apprenticeship.

The times have changed, progressiveness is the watchword of the hour, all branches of trade have their evolution. We stonecutters are passing through one now—"machinery, the saw, the planer and the lathe are doing the work formerly done exclusively by hand labor, but do not forget that if you want a new crop of stonecutters that you must give them, as boys, the opportunity of learning the trade. You will have to make some sacrifice—must give the boys moldings to cut which you can finish for less money on the planer than will pay the boy's wages, however little that may be, and unless you do this and in the manner as previously suggested, you will not have him to do the work for you which the machine at the present day can not do.

You bosses who live in the large cities, you who have entered your complaint on the score of apprenticeship rule should do more; it would prove of great benefit to the average boy and the greater

to the one who possesses the genius, as soon as the same is discovered by the boss or his foreman, to encourage him in stonecarving and let him rough out for a carver at work in your shop. This is but a part of your duty to the boy when you take him as an apprentice, to the trade, and may be of benefit to the boss later.

I have always been the boy's friend and in my paper to-night will go a little further in my suggestions. In addition to pushing the boy forward in his trade, give him the opportunity to take advantage of obtaining a technical as well as a practical knowledge of stonecutting. Have such of your boys who have an aptness for drawing attend your night trade school sessions, and those, who, after a little practice in that direction, and who in addition have a liking for mathematics, given a chance for a course in sheet metal pattern making in the Scranton Correspondence or other similar schools, and my word for it, you will soon have not only stonecutters that are first class workmen, but men whom you can use as foremen, and their having good business qualifications in addition, they will become cut stone contractors and of the kind qualified to be your equals.

My father before me, and myself now, are, and always have been, friendly to the apprenticeship system, and the right to employ as many as I could properly handle and learn the trade, and never could understand why a stonecutter should take the position that he must rob the boys of the chance to learn a trade; none nobler exists than that of stonecutting made famous in Scripture and history, itself handing down to posterity the legends of old, the reign of dynasties, otherwise lost to the present age, done in enduring stone, the wonder of the age, and the skill of the ancient stonecutter.

I appeal to your trade-pride, if not for any other reason or cause, to give encouragement to the lad who seeks to learn the trade and be rewarded in not only having stonecutters, but also in the creation of first class workmen. I trust that this organization will adopt such measures as may bring about this desired result. Thanking you for your kind attention, I herewith close.

A Little Poesy.

Mr. P. K. Stevenson then responded to the toast, "What is Good in Kentucky," in the absence of Mr. Edward Peter, of Louisville, who had to leave before the banquet. Mr. Stevenson said that fidelity was one of the strong points essential to the success of any organization, and brought out another point that was good for the cause which was friendly relations as a principle to business. He made some witty remarks about the dirt of Pittsburg, and then sprung this ode, entitled:

IN KENTUCKY.

BY JUDGE JAS. H. MULLIGAN.

The moonlight is the softest,
In Kentucky.
Summer's days come ofttest
In Kentucky.
Friendship is the strongest,
Love's fires glow the longest—
Yet a wrong is always wrongest
In Kentucky.

The sunshine's ever brightest
In Kentucky.
The breezes whisper lightest
In Kentucky.
Plain girls are the fewest
In Kentucky.
Maiden's eyes are the bluest,
Their little hearts are trueest
In Kentucky.

Life's burdens bear the lightest
In Kentucky.
The home-fires burn the brightest
In Kentucky.
While the players are the keenest,
Cards come out the meanest,
The pocket empties cleanest
In Kentucky.

Orators are the grandest
In Kentucky.
Officials are the blandest
In Kentucky.
Boys are the fleetest
Danger ever highest—
Taxes are the highest
In Kentucky.

The bluegrass waves the bluest
In Kentucky.
Yet, blueblooms are the fewest(?)
In Kentucky.
Moonshine is the clearest—
By no means the dearest
And yet it acts the queerest
In Kentucky.

The dove's notes are the saddest
In Kentucky.
The streams dance on the gladdest
In Kentucky.
Hip pockets are the thickest—
Pistol hands the slickest,
Cylinders turn the quickest
In Kentucky.

Song birds are the sweetest
In Kentucky.
Thoroughbreds the fleetest
In Kentucky.
The mountains tower proudest,
Thunder peals the loudest,
The landscape is the grandest—and
Politics the damndest
In Kentucky.

The Secretary Gets a Smoke-Up.

Mr. Reese Lindsay, of Pittsburg, was asked to respond to the subject "Smoke." He remarked that smoke was necessary where the wheels turned and was beneficial. He illustrated the fact by stating that the best illustration was the polish on the secretary's head.

The secretary then announced the excursion for the next day, and the convention sang "America."

Mr. Stone, of Providence, then wished to thank the gentlemen of New York and the Western States and the local committee for the pleasant time enjoyed by all present. He also announced the death of Mr. E. Worthington, who was well known to the quarrymen of the West and cut stone manufacturers. Appropriate remarks were made in reference to the death of our departed brother, and it was nearly 2 o'clock by this time, and all voted that this was one of the pleasantest occasions of their business life.

A TRIP TO SOUTH DOVER.

The sun shone bright on this Saturday morning when two carloads of stone contractors, the guests of the South Dover Marble Co., started on their way to visit the quarries of South Dover. The party was under the personal escort of President P. B. Parker, Vice President A. G. Williams, Secretary G. N. Williams, Treasurer B. A. Williams and General Manager J. B. Gillie. The train was well equipped with good things to eat and good things to drink, and the sociability of the occasion was enhanced by the way our hosts did it. We could not help but enjoy ourselves. We landed at the headquarters and then took the company's own trolley car and went part of the way and then took their special automobiles and we finally arrived at the quarries.

By the way, this is one of the oldest marble quarries in existence, being over 100 years old. The largest amount of stone gotten out before the present owners got hold of it was in the sixties, when the government contracted for a large number of stones to set up over the graves of the American soldiers.

The present company was organized several years ago, and they are making great progress in the sales of their marble. It is being worked largely for exterior work, although its short distance from New York, only 79 miles, indicates that the 300 acres owned by this company, which is underlaid with Dover marble, will aid in beautifying one of the most attractive cities in the world to-day, New York City. The machines being operated at this quarry are eight Sullivan and three Ingersoll-Sergeant channelers. The hoisting machinery is furnished by the Lord, Bowle Co., of Cleveland. The derrick stick will lift fifty tons. The electric traveler carries the stone to the mill three miles away.

You would think this quarry was located in Connecticut, but it is in Dutchess county, New York, on the Harlem division of the New York Central and Hudson River R. R. The sawmill and plant of the company is operated by the New York Cut Stone Co., and contains a Shaw traveler with a capacity of 50,000 pounds, and a Farrell foundry planer and lathe. The latter you will see

is somewhat large for it had a column on it being turned 26 feet 10 inches by 3 feet 11 inches, for a Brooklyn bank. A number of small travelers are operating in the yard of the Yale patent to handle small stuff. The rubbing beds were built by the Lincoln Iron Works, who will shortly add a new 18-foot gang to the three now in operation. This company got out something like 200,000 feet of marble in 1904, and will increase it to 350,000 feet in 1905.

The party returned to New York after a pleasant day about 4 o'clock. They expressed their thanks with much sincerity for a pleasant excursion and entertainment, as well as an educational feature for the association, which other quarrymen will do well to follow up.

One of the interesting visitors at the convention meeting and excursion was Mr. G. N. Williams, Sr., who, for thirty years, was in the business in New York, but for twenty years has been enjoying the pleasure of taking it easy. Although up in the eighties Mr. Williams acts like one of the youngsters and enjoyed every minute of these occasions. He was certainly welcomed by all of the delegates present.

The buffet on the eighth floor was a very pleasant rendezvous for the delegates. It was a happy thought of the Dickinsons, Walters, McCormick and Lanham, representing the Bedford Quarries Co., P. M. & B. Co., Ohio Quarries Co., and the Cleveland Stone Co. The latch string hung out and some very pleasant sessions were held under the auspices of the illustrious gentlemen who presided.

A Novel Idea.

Stone cutters in many places have adopted portable electric lights, which are fastened to the head by means of a strap. These have been found of great assistance in work when a good light is essential. In lettering marble or granite it is very necessary to move the light at frequent intervals. These globes are protected from accident by a wire guard, and give the necessary light for such particular work, which is often difficult by the ordinary light because of the shadows which obstruct the progress of the workman.

Awaiting More Favorable Weather.

NEW ALBANY, IND., January 29.—Crumbo & Son, the largest stone handlers in this city, are experiencing the usual dullness caused by the very cold weather, in their line. Their large plant was practically closed down when the writer called and they were awaiting the advent of more favorable conditions. Considerable work is being planned and more figured on, and they look for a good year. Mr. Crumbo, senior, has been ill at home for about two weeks.

THE QUINLEN STONE EDGER.

New Inventions That Will Be of Interest to Soft Stone People.

BARRE, VT., January 28.—A patent has just been allowed to William C. Quinlen, of this city, for a device for cutting soft stone that is likely to be an important factor in the soft stone trade. Mr. Quinlen was a practical granite cutter and a practical soft stone cutter. He had conceived the idea long ago that there could be a machine made that would cut soft stone as fast as the circular saw will cut a pine board. Two years ago he was cutting soft stone in Jacksonville, Fla., when he determined to put his ideas to practical use in building a machine that would cut coquina or Florida marble, and thus decrease the cost of production.

The following summer he spent in Barre and caused to be manufactured, at the plant of the Smith, Whitecomb Cook Co. a machine after the pattern he had modeled. This machine is illustrated in these columns.

In the first place it is extremely simple and equally durable. The main principle is a disk run direct from the belt that runs around a pulley attached to the disk. This disk is supplied with a system of chisels, the number of which depends upon the diameter of the disk. These chisels point diagonally at the object which they

are operating upon. In a disk of five feet in diameter there are eighteen chisels. These are each reversible so that they can be changed in a very short time. In front of this disk is a table running parallel, upon which the stone block to be operated upon is placed. This table runs upon a track so that the stone can be shoved easily forward by the operator and the rapidly revolving chisels upon the disk cut the face of the stone fitting it for the builder's use with the rapidity of a circular saw going through a log of wood.

Last winter the machine was taken by Mr. Quinlen to the quarries at Daytona, Fla., and there, after a thorough trial it proved to be even more of a success than the inventor had anticipated. When used upon the stone composition known as coquina it was proven conclusively that one machine with one operator would do the work of from six to ten men. At \$4.00 per day for each of these ten men, we need to ask no more. This machine does not, of course, compete with the saws in their class of work but any stone man can readily see how many dollars worth of stock could be saved by this rapidly working edging process.

Four or five horse power is sufficient to run a machine of ordinary size.

Mr. Quinlen has made arrangements to have the machine manufactured by reliable manufacturers and he can get them out at any time on reasonable notice.

The cost is extremely reasonable. Particulars regarding the latter may be had by correspondence with Mr. Quinlen, at Barre, Vt.

Fire destroyed Frank Carlucci's stone plant, at Scranton, Pa., on January 17. Loss about \$100,000.00, half of which was on machinery.

The Neff Stone Co., Neff, Ohio, has been incorporated by Alexander Neff, C. D. Lamb, F. Neff, A. T. Neff and W. H. Hart. Capital stock, \$25,000.00.

The Schuylkill Stone Co., of Camden, N. J., has just been organized; capital \$5,000.00. The incorporators are: F. R. Hansell, G. H. B. Morton and J. F. P. Cotter.

The Canton Stone Co., Canton, Ohio, has been incorporated by W. B. Dager, W. L. Davis, H. S. Parker, E. T. Finefrock and H. B. Webber. The capital stock is \$25,000.00.

The Butt-Chapple Stone Co., of Washington, D. C., has been incorporated with a capital stock of \$5,000.00. The incorporators are: C. J. Wallace, P. G. Smith and H. Boesch.

The John Heinlein Cut Stone Co., of Brooklyn, N. Y., has been incorporated with a capital stock of \$30,000.00. The directors are: John Heinlein, A. Heinlein and J. R. Donaldson, of Brooklyn.

The Enterprise Stone and Granite Co., of Cincinnati, Ohio, newly incorporated; capital \$50,000.00. A. T. Hazen, L. T. Hazen, J. W. O'Hara, S. L. Snodgrass and P. L. Scarabrough, are the incorporators.

Kavanaugh Bros. Co., of Quincy, Mass., have been incorporated with a capital stock of \$25,000.00. They will deal in stone, marble, etc. H. K. Kavanaugh, E. H. Kavanaugh and D. G. Prescott are the incorporators.

The Patapasco Stone Co., Jersey City, N. J., has been incorporated with a capital stock of \$100,000.00, to manufacture and deal in soapstone. The incorporators are: F. G. Colby, Charles Tatham, Edwin Tatham and Benjamin Tatham.

The Carthage Limestone and Quarry Co., of Carthage, Mo., has been organized with a capital stock of \$25,000.00, half of which has been paid. The incorporators are: G. S. Beimdick, Geo. G. R. Kunz, R. M. Richter, R. A. Jones and Robt. Orndorff.

The Little Falls Stone Co., of Little Falls, N. Y., has been incorporated with a capital stock of \$500,000.00. The directors are: John Hurley, J. B. Donavan, J. O'Rourke, O. H. Hyer and Dennis G. Maxwell. A plant costing \$80,000.00 will be erected and the company will employ about 150 men.

The Utica Stone and Construction Co. has been incorporated with a capital of \$25,000.00, at Utica, N. Y. The directors are: Alfred B. Wing, George M. Weaver, Jr., and John E. Brandegee. The company will cut and furnish stone for building purposes. They will make a specialty of Indiana limestone, and operations will begin in the spring.

PORTLAND STONE.

A Much Used Material in England, Which is Closely Similar to Bedford Stone.

Portland stone has long been largely used in the south of England and is now making its way northward. Many public buildings are being built of it, and in all probability it is destined to have a long popularity in all parts of England.

This stone is similar in appearance and in composition to the Bedford stone of Indiana, and a comparative analysis of both is here given.

Comparative Analysis.		
	Portland Stone	Bedford Stone
Carbonate of Lime.....	95.16	97.26
Silica	1.20	1.69
Oxide of Iron50	.49
Magnesia	1.20	.37
Water and loss	1.94	.19
	100.00	100.00

The analysis of the two stones shows the same quality and structure, but with some important differences in favor of the Indiana Oolitic limestone.

It seems a very peculiar freak of nature that this stone should crop out in the little island of Portland, on the south coast of England, and also in the center of this country, these being the only two places at present known where this stone exists. In England it has long been the principal material used in the old public buildings, among them being St. Paul's Cathedral, one of the landmarks of the world.

After centuries of wear and exposure the weathering prospects of this stone have had unusual chances for being tested and judged, and the unqualified verdict is that Portland has proved far superior to all other kinds of stone, and to such an extent that at the present moment the New War offices, the Government offices, the Admiralty, the West Kensington Museum, and, in fact, every government building in course of erection in London is being constructed of Portland stone.

Unfortunately for the cut-stone men of Great Britain, this stone has a greater percentage of shells and flint than appears in the limestone of Indiana, which makes it much more difficult to cut and work. It is worked and finished in the same way as Bedford stone, namely, by the circular diamond saw, gang saws, planing machines, rubbing beds and so on. It is hardly ever polished, and is used almost always with a smooth face.

In addition to the time weathering qualities of this stone in the matter of indestructibility, as above alluded to, it has unusually strong resisting qualities to the action of acids and gases, which important fact has become so thoroughly well known and admitted, that municipal bodies are beginning to stipulate that the lower stories of all public buildings shall be of this stone.

The quarry firms who are handling it are doing an immense business, and are now spreading their wings and flying beyond their old southern limits and are putting in depots at Liverpool, Manchester and other big cities. At the first of these places the new Mersey dock office, which is abreast the landing stage where the great Cunarders come in, is built entirely of it.

In addition to the general qualities which cause its popularity among those who plan the buildings into which it enters, it is also popular with the contractors and builders themselves, because, barring the shell and flint hardness already alluded to, it works up nicely and can be readily handled.

As to the extent of the deposits, the individual Portland quarries are not so great as the various deposits found at Bedford, but blocks of any dimension can be obtained. It is looked on in Great Britain as the leading stone, and when people see so much of it around about, both that which has been taken out for ages back and appears in the walls of the many ancient edifices of England, and the great quantity being taken out daily, you may say, for the present largely increasing consumption, they naturally wonder when the little island of Portland will become exhausted. But the owners of the quarries there are not alarmed. On the contrary they have an abiding confidence in the inexhaustible nature of the deposits, and they have a strong confidence that Portland stone will go on for many, many years helping to perpetuate the architectural taste and skill of Great Britain.

Quarries.

The National Quarry Owners' Association.

D. McL. McKAY, Chicago, Ill. President
W. H. WALLACE, Bay Port, Mich. First Vice President
F. A. BROWN, Aberdeen, S. D. Second Vice President
S. M. HALL, Bucyrus, Ohio. Third Vice President
E. H. DEFBAUGH, Louisville, Ky. Secretary-Treasurer

Official Organ, ROCK PRODUCTS.

Third Annual Meeting.

The third annual meeting of the National Quarry Owners' Association will be held on February 23 and 24, at the Auditorium Hotel, at Chicago, Ill. It is essential that a full attendance be on hand at this meeting, as the necessity for mutual co-operation has never been more apparent.

INDIANA OOLITIC BELT.

Interview with the Leading Quarrymen and
Producers of the Great Limestone
Industry.

BEDFORD, IND.

Bedford, Ind., February 4.—On a mid-winter visit to the mills and quarries about Bedford and Bloomington, the representative of ROCK PRODUCTS found the country in the clutches of a cold wave, and operations temporarily at a standstill.

Most of the stone men were comfortably toasting their shins before their home firesides, but a few brave to the elements were found at their desks.

This season of the year, of course, is always a dull one with the quarries and mill men, but it has not been so dull this year as for several years previous. The fact is that all of the quarries and mills have orders enough to keep them going during such spells of good weather as may now and then occur. Without exception all look forward to a big business when spring comes. The general confidence in a prosperous year is the most noticeable thing which impresses one after a conversation with all the leading men in the stone trade.

The oolitic limestone of Indiana is undoubtedly coming more and more into demand, and there is every reason to believe that there will be a far greater amount of it used this year than any year since its discovery.

George Dugan was found at his office sorting over his mail and outlining plans to be put into operation as soon as the present cold snap was past. The present lull, he said, was entirely due to the severe cold.

Mr. Dugan said he had no big contracts on hand, but had enough work to keep him running as the weather permitted, and that he looked for a big business in the spring.

Just across the way from Mr. Dugan's plant, J. G. Phipps, of the P. M. & B. Stone Co., was at work with several assistants in the office of the mill. This company has recently put in two new planers and four gang saws at their Stonington

mill, and at their Bedford mill will make an important addition to their steam plant. Mr. Phipps says he looks forward to a big business in the spring.

The company now has orders enough to keep them going at such intervals as they are able to run their plant. At present they are working on some handsome columns for a house at Somerset, Pennsylvania. These are monoliths 25 feet long; ten in number, and will be delivered in March.

Mr. N. Joiner, of this company, was later seen in his office in the square, and expressed confidence as to the business outlook. "As soon as the ground hog has settled this weather scare," said Mr. Joiner, "I think things will begin to hum in dead earnest."

At the Bedford Steam Stone Works, F. W. Kackleman, the secretary, said business was slack, but only because of the unfavorable weather. He said he was making plenty of estimates and the prospects were for a good trade with the advent of spring. The company now has some small carload orders which will keep them going.

The New Cut Stone Plant.

Furst & Kerber have moved all of their equipment from the old plant to the new one just completed. There is probably not a finer plant of this kind in the country.

The foundation for the new plant was started July 25th. The great Anderson saw first began to revolve on the 19th day of January, and there is nothing of this plant that is not thoroughly first-class in every way. There are three travelers ranging from 30 tons to 215 tons capacity. The immense saw with its diamond points revolves at the rate of 410 rotations per minute, and cuts through the stone at the rate of six inches per minute. We will have the pleasure of describing this great plant in detail in an early issue.

Mr. Furst said he had enough orders to keep him going until spring opened. He explained that in the winter many held back their orders, and then rushed them in as soon as the cold is past, taxing the mills and quarries to their capacity.

Some handsome capitals for the Federal building, Lincoln, Neb., were loaded on cars at this plant ready for shipment.

He is Always Busy.

John A. Rowe was found at his office at the mill, and said he had two or three jobs of from six to fifteen carloads on hand now, and expected a rush in the spring. Mr. Rowe took occasion to say some nice things about ROCK PRODUCTS, and incidentally paid a tribute to his own sound judgment by remarking that he was one of the earliest advertisers in the paper. There are some handsome specimens of the monument maker's art to be seen at this plant, also.

C. S. Norton, of the Norton Blue Stone Quarry, one mile east of Bedford, was not in his office, but his foreman said they were preparing for heavy orders.

Mike Wallner, of William Bradley & Son, says his concern has just put in three large planers and two gang saws, and is still working on the War College Building at Washington, D. C., besides several other jobs of lesser importance. A heavy stock is on hand, but they expect their usual big trade in the spring.

Mr. Wallner took the ROCK PRODUCTS man through his plant and showed some handsome specimens of stone work which were to go into the War College Building; among these were six fluted columns in six sections each, each section six feet nine inches long, and were fluted by hand.

We were shown designs for three eagles to be carved in stone seven feet high and six feet from wing to wing. He pointed out the huge blocks from which these were to be made. They will also adorn the War College Building.

The Bradley concern secured the contract for building the post office at Cleveland, Ohio, nearly two years ago, but there has been, and is still, a squabble over what kind of material is to go into the building, and consequently the work is at a standstill with merely the foundation laid.

Robert Reed, secretary of the Oolitic Limestone Co. and the Bedford Quarries Co., was found at his desk in his office at the public square. Mr. Reed expressed the same confidence of the other stone men for a good trade with the coming of spring. He said it was a little early now to make any definite predictions. His company had no very big contracts at present, but a number of small orders were keeping them busy.

Robert McKinley, of the Climax Stone Co., said his idea was that it would be better for everybody to stay comfortable by his own fireside while this weather lasted.

BLOOMINGTON, IND.

At Bloomington, S. J. Freeze, of the National Stone Co., was found chatting to some friends in the lobby of the Bowles Hotel. Mr. Freeze said he expected to do a big business this season.

The Monroe County Stone Club.

The stone men of Bloomington and the surrounding country have taken a step in the right direction in the formation of the Monroe County Stone Club, along lines similar to the Stone Club of Bedford. The final steps of the organization were taken about two weeks ago. Fred Mathews was elected president, and William T. Blair, secretary.

Nearly all of the prominent stone men of the country have already joined the club, the membership being seventeen, and there are only twenty-two stone plants in active operation. There is no doubt but that the remaining five will join the organization before long, as all have expressed themselves as favoring it. The object is the general betterment of conditions in the stone business. The influence of such an organization is too apparent to need commenting upon. Unquestionably, this new club will result in great good to the stone men of Monroe county. The question of organizing was first discussed about Christmas.

George W. Henley Stone Co. a six gang mill at Stinville, burned down last week. The loss was estimated at \$10,000.00, with an insurance of \$7,000.00. While it is not definitely announced that the company will rebuild, it is almost certain that they will.

Increased Sawing Capacity.

D. K. Miers, of the "Big Four" companies, was seen at his office. He said he had booked a number of nice orders for shipment during the season, and he expected to have a new mill in operation at the Mathers quarries by the first of June, and will put in six gang saws and two planers. The work of installing these is now under way. Mr. Miers looks forward to a splendid business this year. He says his business for this year has been very much better at this usually dull season than it has been for three years past.

A Chat With Billy Blair.

Mr. Blair, of the Central Oolitic Stone Co., gave us the glad hand. The engine at this plant broke on December 22, and the opportunity was taken to replace it with a new Hamilton-Corliss, and a big tank has also been erected, which will supply an abundance of water. During the enforced idleness caused by the breaking engine, Mr. Blair took his rush orders to other of the Bloomington stone men, so that every order has been filled without delay, and very few of his customers know that his plant has been closed down, and he expects to resume operations in about ten days.

"Prospects for a good business this year are very bright," said Mr. Blair. "We have considerable finishing work at the plant, and will also get new orders right along; when spring opens we will be kept busy beyond a doubt."

There will be considerable home work for Bloomington stone this year, as well as an increased demand from all over the country. A new library to cost \$100,000.00 is one of the buildings which is to be erected in the handsome little capital of Monroe county, this year. Besides there are several churches which will be built, and the Students Building now under way will be completed. All of these are to be built of stone.

The entry of the Illinois Central Railroad into Bloomington is hopefully looked forward to by the stone men, as well as the other citizens, and it is predicted that in a short time there will be spur tracks from this road leading to the principal mills, making a new advantage to the industry.

Mr. Hooper, of the Eagle Stone Co., was not in town. Mr. Johnson, of the Chicago and Bloomington Stone Co., was evidently at home hugging the fire, and Mr. Campbell, of the South Side Stone Co., expressed himself as looking forward to a good trade this year.

The Castalia Stone Co., of Pt. Clinton, Ohio, has been organized. Judge Hammond, of Elliston, Ohio, is vice president; J. G. Steinkamp, of Elmore, Ohio, is secretary, and Wm. Wright, of Marblehead, Ohio, is manager.

The Emanuel Co. has been organized at Catasauqua, Pa., to mine limestone. The capital stock is \$125,000.00, and the incorporators are: D. G. Emanuel, G. W. Aubrey and W. B. Wolcott.

The Wauwatosa Quarries.

WAUWATOSA, Wis., January 31.—The Monarch quarry was probably the first one opened here, Holston & Chase being the parties who opened it, and later the quarry passed through a number of hands and finally became the property of The Monarch Stone Quarry Co. about 1899 or 1900. The officers of the company are: W. T. Durand, president; Jacob Heyle, vice president, and J. W. Bingham, secretary and treasurer.

This company produces both building and crushed rock, having a plant equipped with a No. 7½ and a No. 3 Gates crusher. The rock is hauled to the plant by 2 blundins, one of a thousand foot span, the other about 700. A longer cable is also used for the purpose of carrying crushed rock to the street car tracks. This quarry, like all of the others in the section, does not have the railroad into their quarry.

Manegold Bros. are operating a good-sized quarry and crusher plant, mainly for crushed stone, and equipped with a No. 5 and a No. 3 Gates crusher. At this plant a rock is taken to the crusher by an incline and dump cars. The company is made up of A. F. and L. Manegold.

The quarry of Storey Bros., which was started by H. F. Storey, the father of the present manager, about 1855, is probably the largest quarry in the section. It certainly has produced more building stone than any other quarry in the neighborhood. Mr. H. F. Storey, some time after opening the property, took his brother into partnership, and it was known as Storey Bros., they operating the property till 1887 when two sons of H. F. Storey, A. L. and W. E., took up the business. A. L. looking after the quarry and W. E. after the selling end. At the death of W. E., in 1904, the entire management devolved upon A. L., who goes out early in the morning and lays out the day's work for the quarry and goes down town in time to take care of his own interests as well as that of the Milwaukee Crushed Stone Co., of which he is manager. About 10 or 15 acres at this quarry have been worked to a depth of about 100 feet and drill cores have shown that if necessary, they could go down 300 feet and still have essentially the same class of stone. The quarry is equipped with five 10-ton derrick rigs, built by the Scovill Iron Works, Chicago, five hand power and one horse power derrick. The Scovill hoists were built to run with steam, but are being operated with great success by compressed air. The stone lies in sheets from 2 inches to 42 inches in thickness, and a large amount of building dimension and peer stone is produced. Three-inch stuff is used for the footings, and the demand is greater than the output, as a rule. One of the large demands recently on these quarries was for the foundation of the large chimney at the Schlitz brewery, which is about 270 feet high. This chimney required the output of two quarries for a short while to keep it going. The stripping at this quarry is rather excessive, being close to 50 feet; however, the first 20 to 25 feet is a gravel of good quality, and the income from the sale of this has almost paid for the removal of the other 25 in which was a mixture of clay and gravel. The quarry is equipped with a crusher located right down in the quarry. This plant is equipped with a No. 3 Gates crusher, and Mr. Storey says that he realizes the necessity of putting in a large crusher, making this one secondary to that and placing elevators so as to deliver the crushed stone on the bank of the quarry instead of hauling it out of the quarry by wagon as has been done in the past. This company has a switch on its property, but it does not, as yet, run into the quarry,



QUARRY OF STOREY BROS., NEAR WAUWATOSA, WIS.

but can be readily placed there, and it is probable that Mr. Storey will make these changes during the next season. It is possible that the cost of labor, blasting and loading of the crushed stone at these plants is somewhere around 40 cents, but this does not represent the whole cost by any means, as depreciating property royalties, if the property is not owned, cost of stripping, cost of operating engines, boilers, etc., will materially increase this. Selling prices for stone delivered in Milwaukee are about as follows: Crushed stone, \$1.30 per yard; best dimension stone, about 25



QUARRY OF THE CITIZENS ALLIANCE, JOLIET, ILL.

cents per cubic foot; range stone, about 23 cents per superficial foot; bridge stone, from 15 to 20 cents per cubic foot, and rubble stone, about \$7.50 for 13,000 pounds, which is the weight given for a cord.

Joliet, Illinois, Limestone.

In and about the city of Joliet, Ill., is to be found a large amount of valuable limestone, suitable for building purposes. The Citizens' Alliance, composed of a number of the leading citizens of Joliet, has been organized for the advancement of her interests. The Alliance has issued a handsome booklet, with fine illustrations, one of which we reproduce, showing a view in one of the city's eight quarries. The limestone stratum in this locality is from fifty to one hundred feet thick. A considerable portion of Chicago has been built from this stone. The price ranges from \$3.00 to \$4.00 per cord. We hope at some future date to give a detailed account of this industry, with a number of illustrations.

The Mullen quarries at Bridgewater, Pa., after many years of idleness, will be operated again. The quarries are among the largest in the eastern part of the state and in many years were the scene of great activity.

The Bowling Green White Stone Co. was chartered in Dover, Del., to acquire and carry on quarries and mines. The capital stock is \$30,000.00.

The Gibraltar Quarry Co., Brownstown, Mich., incorporated with a capital stock of \$20,000.00. Incorporators: Fred S. Hall, W. G. Lerchen and Gerard F. Merriam.

The Little Falls Stone Co., of Little Falls, N. Y., incorporated with a capital stock of \$500,000.00. Directors: John Hurley, D. G. Maxwell and O. H. Heyer.

The Aurora Stone Co. has been incorporated at Aurora, Ill., with a capital of \$100,000.00. The incorporators are: J. M. Raymond, J. K. Newhall and E. E. Hinkley.

Quarry Changes Hands.

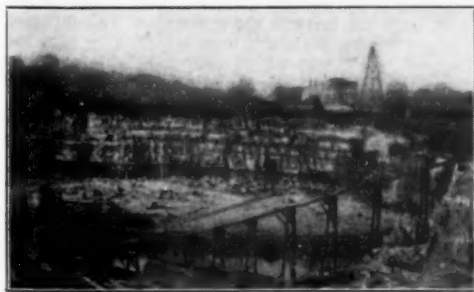
Adam Groth, a well known contractor, has purchased the twenty-two acres included in the E. Porter stone quarry at Joliet, Ill. Mr. Groth is known as the builder of many magnificent stone and marble structures throughout the United States. Only about seven acres have been quarried out, but Mr. Groth announces that the quarry will be opened this summer and extensively operated till the snow falls next winter. It is one of the noted limestone deposits of that section and contains the highest grade stone found in that part of the country. Mr. Groth says he expects not only to supply his own needs out of the quarry but to have stone to put on the market.

Increased Output of Grindstones.

The quarrying of grindstones has been largely increased during the past year. According to recent reports this industry has at present an annual value of \$700,000.00. This amount represents the output produced in this country; aside from this the imports, mostly from England aggregate almost \$75,000.00. Ohio is by far the largest producer of grindstones, which are quarried from four or five states. Grindstones are found in sandstone quarries, being a particular stratum of the rock, which is bored and sawed out by special machinery. They are afterwards dressed and rounded and are then placed upon the market.

Good for West Shore Co.

The West Shore Stone Co., of Catskill, N. Y., has secured a contract to furnish large and crushed stone for Manhattan Bridge No. 3, between New York City and Brooklyn. This means that 400 cubic yards of stone must be quarried and delivered every day for nearly two years, and the installation of a trolley from the quarry to the dock, a distance of a mile and a quarter. A No. 5 Gates crusher has been ordered from the Allis-Chalmers Co. and a 300 cubic yard storage bin will be erected.



QUARRY OF MANGOLD BROS., WAUWATOSA, WIS.

Granite.

QUINCY, MASS.

QUINCY, MASS., January 27.—The event of importance to chronicle this month is the attempt made to adjust the new bill of prices and at this writing the wage question promises to terminate in a suspension of work March 1.

The Granite Cutters' Union has turned down the arbitration proposition submitted to them by the Granite Manufacturers' Association, and the general sentiment among granite men is that a peaceful solution of the present differences can not be reached. Committees were appointed by both the manufacturers and cutters to consider the changes desired in the bill of prices and agreement asked for by the cutters on December 1 last, the principal item of which was an eight-hour day with a minimum wage of \$3.00.

At the first meeting of the two committees the manufacturers offered a proposition that any matters upon which the two committees could not agree should be referred to disinterested parties for arbitration, and their finding should be final and binding. It was believed that if this clause was adopted the two committees could go ahead with the work of adjustment with a better understanding. The union's committee was not empowered to consent to such a proposition, but said it would bring it before the union.

A meeting of the union was held this week, when the matter was acted upon. When the two committees met January 20 for conference the cutters' committee stated that the union had refused to agree to arbitration, and the meeting adjourned without accomplishing anything.

The stationary, portable and holsting engineers connected with the trade, have asked for an increase in pay, to take effect April 1. The stationary and portable engineers ask for an increase from \$15.00 to \$16.00 per week, and the holsting engineers from 25 cents to 30 cents per hour. The engineers also ask for time and a half for overtime work, and double pay on Sunday and holidays.

It is understood that the quarrymen will follow suit and ask for a raise in wages, all of which makes it doubtful as to the summer season's work.

Granite Manufacturers Meet.

The Granite Manufacturers' Association held its first meeting in its new rooms in the Adams building, January 10. The rooms have been newly painted and have new furniture and carpets, making them very attractive.

The association starts the new year under very favorable conditions, one of its members as mayor of the city, and one as a member of the legislature. Its president on school committee, and its oldest member has renewed his youth and taken to himself a young wife. Many of the members thought that Mr. Field would stand the cigars at the last meeting, but he forgot his pocketbook.

The association voted to affiliate itself with the National Association of Granite Industries. The national body is composed of quarrymen, monumental manufacturers and builders in all parts of the country, which promises to be the greatest benefit to the business. In bringing the whole granite industry into harmonious accord.

Mayor James Thompson, of the firm of John Thompson & Sons, has chosen an experienced granite man for the chief office under the city government.

Thomas F. Burke, the new commissioner of public works, is a native of Quincy, having been born in West Quincy, May 16, 1852, and has always made his home there. He was educated in the Willard school, and then learned the stone-cutting business, the prominent industry of the West Quincy district. After learning his trade, he started in business for himself with his brothers under the firm name of Thomas F. Burke & Bros. He has continued in the granite business ever since.

Capt. Thaddeus H. Newcomb, a well known citizen and for many years prominent in the public life of the city, died January 16, at his home, 570 Washington Street, Quincy Point, aged 79 years.

Since the civil war Mr. Newcomb worked at granite quarrying in this city, Maine and New Hampshire. For over twenty years he was foreman of the old Churchill and Hitchcock quarry. Mr. Newcomb leaves a wife. The funeral was held January 19.

Notes of the Trade.

The Granite Railway Co. has declared its semi-annual dividend of 2 per cent.

Philip Cook, of the firm of M. E. Cook & Co., South Quincy, is convalescent from a serious attack of pneumonia.

The weather up to January 25 has more than favored the trade. Quarry, cutting sheds and polishing mills have, in nearly every instance, been working to their capacity finishing work which calls for delivery on or before the 1st of March. The manufacturers have held aloof from figuring on work after that date, fearing the bane to all trades, a strike.

James Cralg has completed and equipped a big engine room which will furnish the power for his new polishing mill, pneumatic tools, etc.

The Merry Mount Granite Co. has elected the following officers for the ensuing year: President, James H. Sullivan; treasurer, John C. Kapples; agent, P. E. Driscoll. Directors, the above with Enos S. Costa, Lemuel J. Myers, John McTiernan.

Returns from the granite shipments from the three railroad terminals for December show the amount shipped to have been 10,584,650 pounds. Of this amount Quincy Adams forwarded 6,001,985 pounds; West Quincy, 4,638,025 pounds, and the Quarry Railroad, 1,944,640 pounds. The total shipments for the year 1904 were 135,352,826 pounds against 132,728,120 pounds for 1903, an increase of 2,624,706 pounds or 1.312 tons. The amount shipped from each terminal during year 1904 was as follows: Quincy Adams, 54,234,253 pounds, West Quincy, 57,473,649 pounds, Quarry Railroad, 23,644,824 pounds.

Old Fashioned Quincy.

If we were to judge from certain communications appearing in recent issues of our trade journals, it would seem that Quincy had become the headquarters for dope, dyestuffs and deception, and that she was a stranger to good work. The fact is, that never in the history of the city has there been a time when better work could be had by those who were willing to pay a living price for it. While it is true that some manufacturers turn out work unworthy of the place, this is true of every important center, not only in granite, but in other lines.

Some carriage and furniture manufacturers cover inferior stock with bright colored paints and brilliant varnish and some granite manufacturers cover inferior stock with other kinds of coloring matter, because there is a trade demand for cheap imitations of high grade goods. So long as the stuff looks well, it sells, and so long as it sells, the retailer makes a profit on it and undersells his honest competitor—and so long as he can undersell his competitor at a profit and stay in the market, he will keep the manufacturer of cheap goods busy. This condition of affairs can not be remedied by the reliable manufacturer. The tricky element in the retail trade simply refuses to pay his prices and the "shrewd" but honest buyer who thinks he can get a dollar for fifty cents, will have to learn the A B C's of business—usually from the Gold Brick Primer—before he appreciates the fact that manufacturers are not philanthropists, and that he will get just about as much as he pays for and no more.

In view of the facts above stated it must puzzle a dealer who knows the inherent superiority of good Quincy granite, to decide where to place his orders. If he turns to the advertising pages of the trade journals he finds dozens of concerns using type and cuts to attract his attention. If he corresponds with the advertisers they will severally and individually claim to use only the best stock obtainable and employ none but skilled workmen. After placing his order and receiving his goods there is a chance not altogether remote of finding that his confidence has been abused and that a tempting price has induced him to add an inferior monument to his stock. The result is that the few

dollars saved in buying are lost, together with a certain amount of reputation, in selling an inferior job. And every inferior job set by a retailer becomes a club in the hands of his competitors and a milestone on the road to the grave of his reputation.

Now some facts are self evident. Standing out strongly in this line is the fact that the future of the granite business in Quincy is a matter of larger importance to the owner of a good quarry than to anyone else. It is a matter not only of interest but of necessity to him that the reputation of his product be maintained at its highest standard for a hundred years hence, as it has been for a hundred years past. He can not afford to use an inferior or defective grade of stock in filling his orders. His whole output is judged by the work he sends out, and if he uses inferior stock where the best is called for it is either assumed that he is honest and that the stock sent represents the best his quarry produces—or that he is dishonest and not worthy of confidence. He can not afford to plead guilty to either assumption. He must maintain the reputation of his product, to keep it on the market. Therefore an order placed direct with the owner of a good quarry is reasonably sure to be properly executed. There are also manufacturers not owning quarries who are particular about their contracts and buy only the best the quarry produces.

A Trustworthy Concern.

Quincy is like other granite centres in many respects. It has honest manufacturers, and it has others. It has good quarries—and it has others. While not in line with the demands from some sections it is safe to say that the product of no quarry in Quincy has given such universal and unvarying satisfaction, when sold on its merits as a strictly medium colored stock, as that of the famous Hitchcock and Dell Quarries, now owned and operated by the Quincy Quarries Co. This is the stock that made Quincy famous. Before the advent of the ink pot and dope bucket, before the hypnotic words "extra dark" were used to persuade the trade to accept in lieu of genuine extra dark, stones which would not pass muster without doctoring, this stock was building up a reputation for Quincy which it has never lost where medium stock was used. Veteran retailers still speak of it as "Old Fashioned Quincy," and it is used to-day by the best manufacturers in Quincy, because it heads the list for reliability and freedom from defects. As it is impossible to make a first-class medium job from inferior stock, it is not subject to the deception practiced on cheap dark work.

It is the misfortune of the retail trade in some sections to have been misled into believing that Quincy produces a stock which is almost blue black in color. Consequently they feel cheated if they get a stone even in genuine extra dark, which is no darker than nature made it. As a matter of fact, ink doesn't hurt a good piece of stock. It wears off to be sure, and the stone goes back to its natural color, creating the impression that it has faded, but the stone wears as well and holds its polish as well as though not inked. But—and this is what condemns the entire coloring practice—when ink or worse materials are used to cover defects in stone which no reliable quarryman would use in filling a rough stock monumental order, the result is an "extra dark" job which disgraces Quincy and starts the trouble ball rolling for the retailer who gets it and for all Quincy as well.

There are two remedies for this condition of affairs. One is to deal only with manufacturers whose honesty is known to be above question, and the other is to deal direct with the quarries. Orders placed with manufacturers or jobbers who have neither quarry interests to guard nor pride in their reputation, whose sole argument for business is low prices, are simply invitations to trouble and disrepute. It is the fault of the retailer, if, with the facts in his possession, he continues to place orders with concerns which give him the cheapest work instead of concerns which supply him with their best stock and a guarantee of satisfaction—at a price commensurate with the value given. A \$3.00 hat can not be sold for a dollar, and a \$100.00 monument can not be furnished for \$75.00. The man who claims it can is a commercial bunco stealer.

Quincy is not decadent. Quincy is not dishonest because she has her share of irresponsibles. Long after the inscriptions have become obliterated and the lustre has passed from many of her rivals, this grand old stone will gleam and glitter in the sun, defying the centuries like its prototype of the obelisks and pyramids—the syenite of Old Egypt.

BARRE, VERMONT.

BARRE, VT., January 30.—Business is good here. Nearly every firm in Barre has twice as much on hand as they had at the same time last year. In some cases they report prices a little better than usual and it would almost make one think that the granite manufacturers had at last awakened to the fact that business without a reasonable profit is worse than no business at all. There was a lot of cheap price work thrown in here early in the winter and possibly that is having its effect now when they come to think it over and wonder why they did it. On the quarries work has, in most cases, continued all winter, with but slight interruption in spite of the exceptionally cold weather. There has been a steady demand for stock, not only locally but from various parts of the country. From the quarriers' standpoint it appears that the retail dealers of the country, especially of the West, are using more rough stock than ever before.

By the way, this quarry owners' association of Barre, is a good model for those engaged in other branches of stone trade. It is a living example of what the right kind of an association can do towards making business profitable for those who belong to it. Not long ago a Western firm sent a man here to buy a quantity of rough stock. He went to one quarry firm and got their price. He tried to make it lower but it was of no use. He went to another, and still another, with the same result. The price was the same. Then he began again with an inducement that it would be cash with order. He met the same stone wall again. They all told him the same; that they wouldn't have even quoted him a price if they had not known the firm to be good for the cash.

The firm of Wilson Bros. had scarcely got located in their nice new quarters, on South Main Street, before they met with an accident that nearly cost the life of James Wilson. He came out of it with a badly scorched face but was away from his business only a few days.

Granite cutters coming here from Hardwick say that business will be suspended there soon for about two weeks, while a large new electric power plant is being installed.

Declares Seventh Dividend.

A dividend of 6 per cent. was paid a few days ago by the directors of the Wetmore & Morse Granite Co., which corporation owns the famous Wetmore & Morse granite quarry. This is the seventh dividend paid by the directors since the organization under James M. Boutwell as the manager. The quarry produces splendid stock and has a fine equipment.

All the firms occupying apartments in what is known as the Old National circle, have been shut down for several weeks while new machinery was being installed for the benefit of all the plants. The machinery being in running order the firms resumed work a few days ago with a greatly improved equipment. This includes I. W. Bates & Co., and the Rogers Granite Co., Carroll & McNulty, Dineen Bros., and several others.

P. F. McCarthy, international secretary of the Quarry Workers' Union, returned from High Island, Me., where he went to help settle the strike. He formed a new branch of the Quarry Workers' Union, at Stonington, Me.

Herman W. Robbins, superintendent at the Woodbury Granite Co.'s quarry, in Bethel, was married recently in Vinal Haven, Me.

A Giant Corliss Engine.

A giant Corliss engine, 325 h. p., and the most powerful in this city, arrived here a few days ago through the agency of the Barre Supply Co., and has now been erected by L. J. Bolsty to supply power to all the tenants of what was once the Jones Bros., Barclay Bros., and National circles. It is also announced that Mr. Bolsty, who owns all this property, will soon erect on available land there a new and modern 400 ft. shed. This big engine has been set up with an eye to this project, so that when the new shed is built it will be all ready for it. An idea of the size of the new power producer can be gained from the fact that its concrete foundation utilized over 100 barrels of Portland cement. It is one of the most powerful engines in the state and is a fitting companion for the gigantic Sullivan Air Compressor, recently installed by Mr. Bolsty for his tenants. The engine will supply the power to work all the polishing machines, pneumatic tools and derricks

on the property, and will also be amply sufficient to supply the proposed new stone shed in addition. Harper & Gallagher have moved their business from the "Old National" circle to the Howland shed at the south end of the city.

Stephen & Gerrard are getting ready to build a 48 feet addition to their large and up-to-date plant.

Charles Pellegati, of the firm of Pellegati, Magnaghi & Galli, has gone to his former home in Italy to remain until the condition of his health shall have improved.

Sickness has made it bad for the Grearson-Beckett Co. granite works, at Williamstown, for a few weeks. W. N. Grearson was ill for several weeks, as was also the foreman, Mr. Moore. M. A. Somaini, a former granite manufacturer, helped them to run the business during their illness.

It doesn't affect Barre particularly but it is an interesting news item that the Delaware & Hudson Railroad Co. has retained the services of an expert geologist, who will devote his whole time to analysis of the stones and minerals found in the road's territory, and all persons living in the vicinity of any point on that railroad are requested by the management to submit samples which they may deem of value. It seems good to us to see or hear of a railroad becoming interested in the industry from which they derive their revenue.

Formal notice has been issued of the dissolution of partnership of F. H. Hopkins and C. W. Huntington, doing business under the firm name of Hopkins & Huntington, and the discontinuance. At about the same time is seen in the court news of Washington County, a docket of two cases, J. M. Boutwell vs. Hopkins & Huntington, and of E. L. Smith & Co. vs. Hopkins & Huntington, general assumpsit in both cases.

One of the giant water wheels at the Viles electric power station, was broken a few days ago and put many of the granite men out of business for a few days.

Mayor Barclay on the Barre Output.

Mayor Barclay, of Barclay Bros., in the annual mayor's message, made these timely remarks relative to the Barre granite industry: "The output of granite this year has been large and above the average. A better class of work is being done. Carving is gradually taking the place of polished and traced work, the former being more artistic and beautifying when set up in the cemeteries of the country. The prospects of the coming year are good. Some large contracts are being let in Barre for large monuments and mausoleums. I think the outlook for the coming season is better than the one just passed. The Barre exhibit at the St. Louis Fair was a step in the right direction. Inquiries are now coming in as to sizes and prices of the monuments exhibited there. Our manufacturers will be called upon to duplicate these monuments many times over and be re-

warded for their labors. One new stone shed has been built in 1904 and several additions made to others."

Golda Douglass, for some time an office man for George E. Bond, has accepted a position as traveling salesman for the granite firm of E. Nelson High, of Cincinnati, Ohio.

The granite quarrying business of Wildbur Bros. & Palmer has been dissolved by mutual consent of the parties, Ernest Palmer retiring from the firm and the business being continued by Wildbur Bros. alone.

A. A. Flint, of the Flint Granite Co., of Albany, N. Y., was a welcome visitor in town recently. He went from here to the granite people at Newport, Vermont.

Martin H. Gibson, a well known granite man of South Ryegate, who was recently appointed administrator of the estate of the late John Miller, his uncle, which was said to be worth some over \$40,000.00, well invested, has paid off all the heirs and he himself being heir to one-fifth of the estate will get a handsome sum.

Allen Smith, of the Smith Granite Co., of Montreal, has been a recent visitor of his brothers, John E. and Donald Smith, of E. L. Smith & Co., of this city.

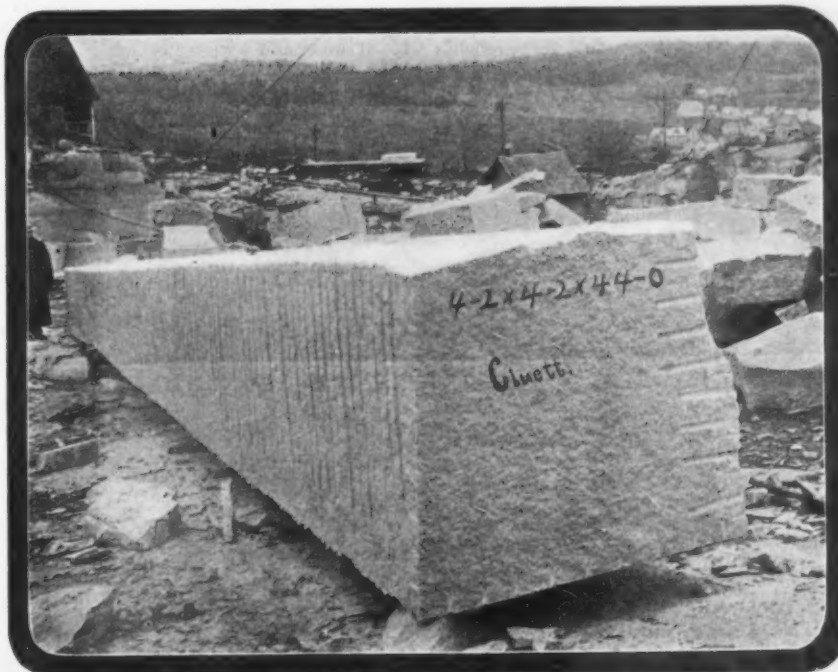
A Possible Alderman.

Friends of D. W. McDonald, of the firm of McDonald, Cutler & Co., are urging his candidacy for alderman. Should Dan consent it would become a firm of aldermen, for both the other members of the concern, his brother John W. and the other partner, Fayette Cutler, have both been honored with the votes of their fellow citizens and presided with dignity in the council of "City Fathers."

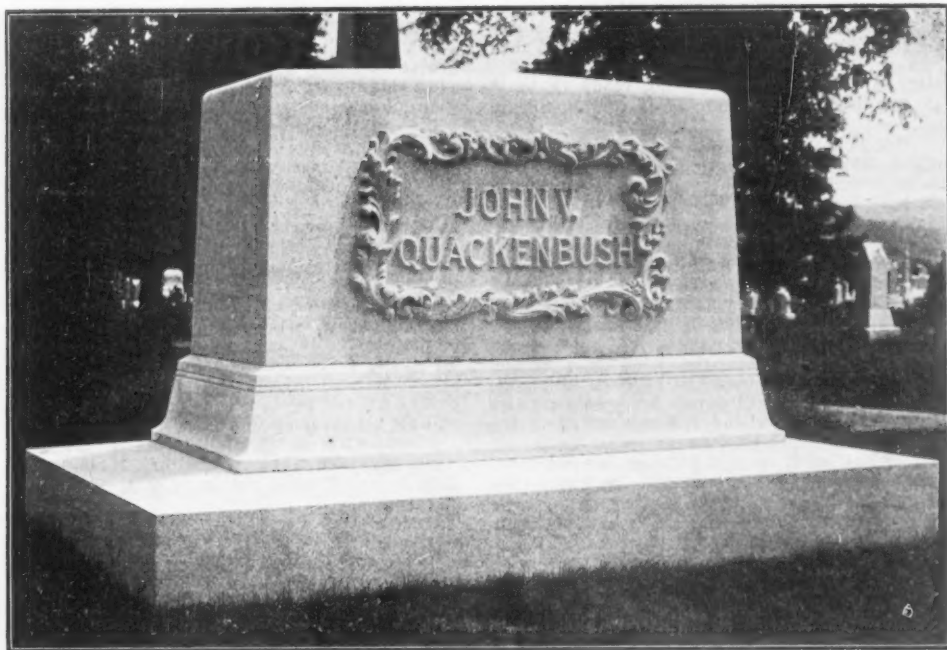
News has been received here from Samuel Novelli, of the firm of Novelli & Calcagni, that his present stay in Italy has much improved his health and that he intends to return to Barre in February. Mr. Novelli is one of the leading granite sculptors of the day.

B. C. Patch, the local manager of the firm of Cook & Watkins, wholesale granite dealers, has been transferred to the Boston office of the firm, and J. Elliot Stoughton, a bright young man who was previously employed in the office of Wells & Lamson, has accepted the position of local manager.

The Barre Granite Manufacturers' Association held a meeting at their rooms on the evening of January 25, when the matter of the annual banquet came up for discussion, but no decision was reached and it was left until the next regular meeting in February. The main topic of the evening was the question of joining the National Association. It is unnecessary to speak of the various phases of the situation as they were brought forth at that time. It seemed to be the general opinion, however, that such an association would greatly



THE FAMOUS CLUETT SHAFT, 44 FT. LONG, TAKEN FROM THE QUARRY OF E. L. SMITH & CO., BARRE, VT.



IMPOSING MEMORIAL CUT BY BARCLAY BROS., BARRE.

benefit the trade as a whole. No definite action was taken owing to the fact that not all the members were present or represented, and it was deemed advisable to wait until such a time as the voice of each one could be heard.

H. R. Mack, of Hardwick, has just completed his 36th year in the business at Hardwick. He set a fine Scotch granite monument and markers at Barton Landing, recently, for C. L. Skinner, Senator from Orleans County. Mr. Mack has set a large number of monuments in Vermont and New Hampshire during the past year.

An Arduous Task.

Littlejohn & Milne are cutting all classes of work at the present time, including one of the finest monuments that ever went out of Barre, and several large mausoleums. For one of the latter they have just been transporting from their quarry an immense roof stone measuring 15 feet by 12 feet, and it has attracted a great deal of local interest. It has cost the firm over \$150.00 and three weeks' labor to move the big block from the quarry to the shed. On the average sixteen horses have been used on it every day. There were several mishaps on the way, the huge block going into a ditch several times but no one was injured. The stone weighed some over 25 tons.

The greatest evil in the granite cutting business is the almost certain contraction of tuberculosis or "stonecutter's consumption," if a man remains in it long enough. The Barre branch of the Granite Cutter's Union has taken the matter up and petitioned the city council to invite to the city a delegation from the State Board of Health to deliver a lecture on Tuberculosis. The request was readily granted. A movement is also on foot to establish a sanitarium for consumptives. A prominent local physician publicly advocates the building of a suitable structure at a cost of about \$3,000.00, and says he believes that consumption, like small pox, is contagious, and that a sanitarium would prevent the spread of the disease as well as give those who have it a better chance for life. During the year of 1904 there was 15 per cent. of the total deaths in the city caused by tuberculosis. Granite manufacturers have for several years been studying this situation and have been trying to find a remedy for it, but the man who knows how to provide a satisfactory system of ventilation in the granite shed, thereby removing the danger that is bound to result from the inhalation of the fine granite dust, has not yet put in an appearance. Here is a great opportunity for Yankee genius.

A Busy Plant.

Robins Bros. are well filled up with work at present. They are at work on one particularly nice design. It is an all twelve cut job 10.9x5.9x10. The bottom and second bases are molded and the five members are cut up with sinkages that form extremely deep internal mitres. The die is of a

unique design, the molding being blended with a very striking piece of carving, the main face of the stone being sunk four inches below this intricate piece of work, brings the more delicate lines into greater prominence. This is topped off with a handsome finial that is completely covered with different kinds of molded work and appropriate carving.

Milne, Clarihew & Gray have just taken on eight additional cutters and find that business is picking up, especially at the quarry.

Burke Bros. are running more men than usual, having got forty in all at the present time, besides the polishers and other men necessary. Frank Burke, who is traveling in the West this month among the retail dealers, has already sent in several thousand dollars worth of orders.

Stephen & Gerrard have an unusually large amount of monumental work on hand and are also at work upon two large mausoleums.

Comoli & Co. have a nice lot of carved jobs on hand. One of these is a very unique design, being a drinking fountain with appropriate carving placed in a most attractive manner.

Business Remarkably Improved.

Dan McLeod, of Emslie, McLeod & Co., is working like an old Trojan these days, taking care of a lot of work and keeping the office end of the business in its customary perfect condition. Mr. McLeod reports that business has taken a remarkable jump within the past few days and a lot of fair-sized work is coming to hand besides several elaborately carved and polished jobs. He had just accepted an order for one especially nice monument. It consists of two bases, surmounted by four fluted columns, surrounding a splendidly carved bust which is set in the center equidistant from all the columns. These columns are surmounted by a plinth and cap, the latter beautifully carved at the corners.

At the plant of C. W. McMillan & Son, I found old Charles and young Charles both out in the yard trying to keep a line on the copious influx of rough stock that had been coming down to them for a few days in large quantities. The genial smile of Charles, the Senior, grows even broader as he sees things booming so finely for him and his.

Another pair of happy boys were Will and Alex Anderson, of A. Anderson & Sons, for they are doing more good business to-day than they have ever done before since they went into it, and the large amount of money that they tied up in their quarry improvements last fall is coming back again. They shipped over five times as much cut work in January, this year, as they did in the same month last year.

Ray Belknap, of Wells & Lawson, had a lot of ordinary work on hand but nothing of special importance at the present time, unless the fact of their just having opened an especially fine quality

of granite on the south side of their quarry may be mentioned.

Another Busy Firm.

At the cutting plant of the Jones Bros. Co., Hugh Jones informed me that business is not only holding good, but is even considerably increased since two months ago, when we mentioned that fact that they had more work on hand than ever before in the history of their business. They are employing many more men now than they were then, and the total has now reached 400, which, in the granite business, is a very unusual thing.

Prospects Never So Bright.

Barclay Bros. have just shipped the Iowa state monuments, which filled nine cars. The Barclays report business good and that they are running the biggest gang of men now that they ever employed before at this season of the year. Douglass Barclay took me out to look at the Pirie tool sharpening machine and went into raptures over the success of it, telling me that it works now to absolute perfection and that it certainly has proven a great investment. The net saving to the firm is a little over \$7.00 per day, or enough, as Douglass expressed it, so that they could afford to buy two good new hats every day. There has recently been an improvement on the bearer system of the endless chain which carries the tools that makes a vast difference in the durability of the machine. The carrying truck now rests upon a track removed from the chain when formerly it rested directly on the chain.

E. L. Smith & Co. have been sliding out rough stock at a great rate all winter and their cutting business is far ahead of what it was a year ago. One of the specially noteworthy jobs they are cutting is for the estate of the late Charles Netcher, of Chicago. The entire monument stands 52 feet high. The spire is 40 feet long and 3 ft. 6 in. square at its base. There are two bases and a die surmounted by a moulded and carved plinth and the above mentioned spire. On the die will be attached a bronze bas relief of a street of buildings owned by the late Mr. Netcher, in Chicago, of which property the deceased was very proud.

Parry & Jones have had nothing to worry them this winter except an occasional difficulty in getting rough stock. They have a quantity of small work on hand and five or six fair sized jobs that will keep them busy until April. The old complaint of close figuring I hear everywhere, and the discussion that Parry and I had about it was the same old story. Strange it is indeed, that when a body of men all feel the same about a subject that there should be no way of coming to an agreement.

Some Fine Specimens of Workmanship.

McDonald, Cutler & Co. have got more nice work on hand now than they have had for a long time. One of their monuments is a 10 ft. square base, surmounted by two other bases, a die, cap and finial, all of the last three being carved; also four pilasters moulded and carved. Another monument they are cutting has a 9 ft. 8 in. square base with two column dies and a cap between, the whole standing 35 ft. in height. The McDonald & Cutler quarry is in better shape than ever, and in spite of the rough blasts of winter, they have kept fifty quarrymen at work getting out stock all winter. They are sending more and more rough stock to the retail dealers every day.

W. A. Lane has just shipped four polishing machines, one to Texas, another to Ohio, the remaining two to other points West. He has just made a new polishing lathe for I. W. Bates & Co., and the same was installed while the engine was being put in at the "National circle." He has also installed an additional polishing machine for E. L. Smith & Co., and is doing a lot of repair work. Mr. Lane expects to build a new machine shop in the spring and as he expresses it, "move from the hen coop into a castle."

E. Cavicchi was as busy as a bee. Among other work he has recently sold four polishing machines to retail monumental dealers in San Francisco, work on hand and five or six fair sized jobs that have ever been used in that city. Cavicchi is getting out something new in the line of granite working machinery that will be sprung on the public in a few days, and it will create a sensation when it lands. He is just now making application for the patent.

Smith Bros. are at work upon a tomb job, the design of which is much different from anything ever cut in Barre before. The base is 9 ft. by 2 ft. 9 in. and it is 10 ft. high and is decorated with elaborate carving.

George E. Bond has just returned from the West where he underwent a successful course of treatment for rheumatism at the Mount Clemens' baths near Detroit. He afterwards went down through Ohio on a business trip and brought home a good lot of orders. Mr. Bond is very cheerful over the business outlook and has been obliged to ask the firm of Oliver Bros., who occupied a portion of his shed, to move to other quarters so as to make more room for his own operations. Mr. Bond advances a good motto for the business when he says that he believes in employing good men. A \$4.00 a day man will earn 50 per cent. more for his employer than the \$3.00 man will do. He thinks this is especially true in the polishing department.

The Dewey Column Cutting Works are cutting a large number of urns and columns and one vase of Quincy granite is being produced by them for the Hy. Berge Granite and Marble Co., of Baltimore. The same firm has turned out many similar jobs for the late Henry Berge.

Makers of New Designs.

Beck & Beck have got a lot of spring work on hand and enough to keep them busy almost up to Memorial Day. Their series of designs have brought them a good deal of work. You will find one in their advertisement in *Rock Products* every month and they will send the full set to any reliable retail dealer who means business.

I. W. Bates & Co. are getting rigged up in fine style. They are to benefit by the mammoth new engine that has just been put in at the old National circle and they have also installed within a few days a new polishing lathe.

Stepheno Rizzi, of Rizzi Bros., is as happy as a newly married man because he sees no end to the amount of carving work that comes his way. He was just booking an order when I called, that is well in keeping with the splendid work that the firm has been getting out during the past year. This one goes to St. Louis. The base is 12 ft. by 7 ft. 2 in. by 1 ft. 4 in. It has a four plaster die and ionic caps, all artistically carved.

"Joe Reinhalter is working nights." This was the pleasing information I received from J. B. Reinhalter the other day. The Reinhalter Granite Co. has such an unusual amount of work on hand that they are obliged to keep an extra gang of cutters on at night. They are running five surface cutters and have just bought two new ones. They are cutting seven big mausoleums at the present time and one of them is a \$50,000.00 job, one of the finest pieces of this kind of work that has ever been cut out in granite. One big one goes to Los Angeles, California, and another one to New Orleans, La.

Mr. Magnaghi, of the prosperous carving firm of Pellegati, Magnaghi & Galli, said he never saw business as good as it is now. It looks especially nice to this firm as they have just got comfortably installed in their new and up-to-date plant, one of the best ones in Barre. Their business shows a remarkable increase since the firm began six years ago as Magnaghi & Co. From a small concern at that time they have grown to be one of the leaders.

Giudici Bros. are getting out a good deal of polished work this month. They just took a \$1,200.00 order of small stuff from one party in Ohio and another \$1,000.00 similar order for parties in Pennsylvania. The interior of this plant is in good shape to do business and their first class office man Walter Sutherland keeps that end of it up to the best of them.

George Walker & Sons have kept their quarry going all winter and business is good at the cutting plant.

MONTPELIER, VERMONT.

MONTPELIER, Vt., January 30.—The Lane Manufacturing Co. have built more travelling cranes for the granite trade than anybody else has, and they can make the same record with the soft stone people if the latter should take the trouble to look into the matter. I called on Manager Pitkin a few days ago and he informed me that they were just finishing that morning the job of setting up their fifth crane for the E. B. Ellis Co., at Northfield. The company came near suffering serious injury a few days ago when a city water main burst near their plant and flooded the boiler room and the lower floor of the main shops before the water could be shut off. Many valuable finished and unfinished castings were under water for some time but were not seriously damaged.

John H. Crimmins died recently of tuberculosis, with which he has been ill for three years. He was 37 years old and was born in Roxbury, Vt. He



ATTRACTIVE STATUE, CUT BY H. J. BERTOLLI, MONTPELIER, VT.

came to Montpelier sixteen years ago and since then was engaged in the granite business, part of the time as a cutter and part of the time as a partner in the Columbian Granite Co., of which Charles Ryle is now the manager and surviving partner.

The American Granite Co. has just placed an order with the Barre Supply Co. for a new 300-foot air compressor of the Sullivan make, this being made necessary for the growing business of the firm.

G. R. Bianchi has just completed a successful business trip through New York and Ohio. He succeeded in landing a \$3,500.00 job in Brooklyn.

On January 9, the entire granite plant of the Capital Granite Co., owned by Thomas W. Eagan, was destroyed by fire and one end of the G. R. Bianchi plant, which adjoins, was badly burned. The Eagan loss was about \$9,000.00, fully covered by insurance. The Bianchi loss was about \$1,500.00 and was covered by insurance. The fire started in the boiler room of the Capital shed and the circumstances were said to be suspicious. There was very little stock on hand, but the compressed air tools, polishing machines, 20-ton crane and hand tools were destroyed. The insurance on the Capital Granite Co. was \$11,000.00.

Cutting Some Nice Monuments.

Harry J. Bertolli is one of the famous sculptors in the granite business. Harry is cutting nine statues in his shed at the present time. One of them is one of the most famous jobs that have



DESIGN BY DOUCETTE BROS. MONTPELIER, VT.

come to this section of the country in a long time. It is no less a one than a monument to the memory to the late Caesar Young, who met a tragic death some time ago, and for which the actress Nan Patterson has been on trial for her life so recently. The monument will be set in Woodlawn cemetery, New York. The monument consists of a rustic base, surmounted by a boulder weighing 28 tons. On the face of this boulder is carved the life size image of Caesar Young, similar to the design of the Corti monument in Barre. On top of the boulder stands a broken column with beautifully carved roses and leaves, the bouquet being grasped by a hand from above. The monument will take a prominent place among the masterpieces in granite.

Doucette Bros. make a specialty of carving and lettering and they are carrying about twice the amount of work they had a year ago. They keep a man constantly on the road among the retailers.

T. J. Callaghan, of C. P. Gill & Co., is a firm believer in all that points toward unity in the business for the manufacturer. He furthermore is sanguine that the time is not far distant when the spirit of association will so far imbue the granite men of New England, at least, that there will be no trouble in forming some sort of an organization that will benefit each member of the trade. When approached upon the subject of this new national association Mr. Callaghan expressed himself as heartily in favor of it if there should be a fair prospect that it would succeed.

Bonazzi & Bonazzi have just taken an order for another noteworthy job and are looking forward to a very prosperous spring. Their specialty is carving and statuary and they have a large force of men at work now.

The Ryle & McCormick Co. were very busy. One of the best things that have gone out of this section in a long time is a big rustic monument for Woodlawn cemetery. The immense boulder is cut so as to represent a pile of natural granite boulders each about two feet in diameter. The ground space covered is about 9x7.6 ft. In front is cut a set of steps about 5 ft. long and three in number. On the top one is set a beautifully carved statue of Memory, the figure carrying a large bouquet of roses. Back of this stands a broken stump 7 ft. 6 in. in height and artistically carved with twining ivy. The design is unique and the perspective is highly artistic. The workmanship is of the highest possible order. The plant is well equipped with everything that practicability and money can select, and the latest addition, a new Ingersoll-Sergeant air compressor with a 30 h. p. electric motor attached, is a great proposition. They also have another air compressor of the same make to be used in case of emergency or any time when a rush of business makes it necessary to use more than one compressor.

J. Poulin is the experienced manager of the Globe Granite Co. which, a few months ago, took over the entire plant formerly used by Lynch Bros., one of the best stone sheds in the city. They have all kinds of up-to-date machinery and they report business to be very good this winter.

Sweeney Bros. occupy one of the biggest plants in the granite monumental business. The plant was occupied a few years ago by the firm of C. H. More & Co. Sweeney Bros. have a shed full of work and good workmen.

Mr. Haley, of Dillon & Haley, reports that they have a lot of work to do and the class of work they turn out keeps them certain of having plenty to do in the future. The firm has just booked an order for a \$2,000.00 square monument that is noteworthy. The bottom base is 10 ft. square. There is a four plaster die and plenty of carving.

New Company Prospering.

GREENVILLE, S. C., January 27.—The Paris Mountain Granite Co., Greenville, S. C., recently incorporated, has now opened up its quarry on Paris Mountain and has already secured a large contract for curbstone, besides other orders for various purposes, which they are now busily engaged in filling. The granite the company quarries is of a beautiful light blue color, similar to the Barre granite; being easily worked and giving a fine dark polish it will be specially adaptable for monumental and building purposes. The deposit is said to be inexhaustible.

The New Bedford Granite Co., New Bedford, Mass., is the name of a new organization just incorporated with a capital stock of \$20,000.00. The stockholders are: B. LaFrance, F. X. Grenier, F. A. Bonneau, L. Z. Normandin, Z. LaFrance, A. Richard, N. Cheney, Leo Bruncheon, Jean B. Jean and D. Goodreau.

NORTHFIELD, VERMONT.

NORTHFIELD, Vt., January 31.—The granite business here is good. Northfield is really a part of Barre and Montpelier, and the situation in all three places is usually just the same, although Northfield adds the granite building industry to a healthy monumental business, and Northfield has a black slate deposit that has no superior. The monumental business is all done in Barre granite.

Cross Bros. are cutting a monument for Kensico cemetery that has a place all by itself. The base is 10 ft. square. There are three bases and a die with four pilasters, carved buttresses at the four corners on top. Next above this is a column die, an elaborately carved plinth, above which is a canopy top with eight polished columns and a carved cap supporting a granite statue of Hope. The latter is 9 ft. high and the entire monument stands 42 ft. 9 in. high. It is all cut in light Barre granite. Besides this they are cutting a nice vault for Sioux Falls, S. D., and have nearly finished an elaborate building job in Monson granite on the new depot at Pinelawn cemetery, N. J. There were 300 tons of granite in the building.

At the office of Cannon & Slack, all were busy with their various ends of business. They are getting out a lot of ordinary work in some very attractive designs and they are getting ready for a shipment four carload lots of small pieces. The Cannon & Slack Co. has a faculty for keeping all of their old customers and that is about as good a sign as any of the quality of work they put out. They are just now getting out a series of fourteen two-piece designs. They are about to issue a booklet from these and send out to the retail trade.

I called upon C. D. and J. K. Edgerton, treasurer and president of the Northfield Slate Co., and after looking into the situation I feel impelled to state that I believe there is a great opportunity here for some practical slate man who can raise \$10,000.00. The situation is something like this: There are two companies here, the Northfield Slate Co., and the Vermont Black Slate Co., the latter having during the past year purchased the Dole-Brill Slate Co. Both companies have well equipped plants and black slate quarries that are not excelled for quality of products and for cheapness of production. What may be said of one company will apply to the other in most cases, I am led to believe. But inasmuch as I was able to find the officers of the Northfield Slate Co. only we will confine our remarks to this company. The company was capitalized at \$150,000.00, and about \$20,000.00 was paid in. They put in an equipment and opened the quarry. They ran it for a while at a profit

and then the misconduct of an employe of the company made it necessary to close it down. Not one of the directors is a practical slate man and the company made the mistake of starting in with insufficient capital. They would welcome at this time either a practical slate man with a little money, or if the capital can be found they would secure a practical man to run the business. The slate is of unexcelled quality, of inexhaustible supply, and it stands in layers almost perpendicularly. The deposit stands on a side hill and the vein is 60 feet in thickness. On account of the side hill it is unnecessary to work straight down, and on account of all the conditions the slate can be quarried very cheaply. It is not like a chance proposition for the quarry has been thoroughly opened and it is all ready to go to work on now. It is but a very short distance to the main line of the Central Vermont Railroad and there is a natural grade to it. Besides the other equipment at the quarry there is a good steam power equipment, but in case this was deemed out of date the new electric power company, which has just brought its service to Northfield, can furnish unlimited electric power at any time.

Oklahoma Granite.

The Abilene Granite and Finishing Co., at the annual stockholders' meeting at Abilene, Kansas, January 2, elected J. B. Blake, president; F. B. Glimpse, secretary, and J. M. Morris, general manager. This company has increased its plant in the last year, putting in an 80 h. p. steam engine at its cutting plant, and equipped the plant with four large polishing machines, traveling crane, St. Cloud column cutter and polisher. The column cutter has the capacity to cut columns 20 ft. long, 3 ft. in diameter. The plant has ten pneumatic hammers, and a plug drill. The quarry property consists of 25 acres of granite and an opening has been made at the base of the mountain where the bluff is some 500 feet high, and is producing blocks in any dimension wanted, having just taken out a block containing nearly 3,000 cubic feet, of fine dark red stock. The stock breaks well, having broken slabs 15 feet long by 12 feet wide and 16 inches thick, on perfect lines.

The quarry is equipped with a Lambert hoist, Rand steam drill, pneumatic plug drill and a 65-foot derrick. Capacity, two carloads per day. The American rose granite is quarried only by the Abilene Granite and Finishing Co., and resembles the celebrated Rose Sued, from which it derives its name, being a dark red, mingled through with a purple spot which gives it a beautiful appearance. The granite hammers more beautifully than any red granite produced. The company has shipped sev-

eral large polished columns to St. Louis for building work, and several pilasters to Kansas City for building there. The demand for stock is growing rapidly, having orders from many of the Eastern States, and from Canada; also from the Southern States. As the demand grows, the company will increase its plant equal to the demand.

National Granite Meeting.

BOSTON, MASS., February 7.—The first meeting of the National Association of the Granite Industries of the United States was held on Tuesday, February 7, at the rooms of the Master Builders' Association of Boston, No. 166 Devonshire Street.

The meeting was called to order at 10 o'clock a. m., the president, Seward W. Jones, in the chair.

THE ATTENDANCE.

There were present representatives from the Granite Manufacturers' Association of Quincy, Mass., from the Granite Manufacturers' Association of Westerly, R. I., and individual members as follows: Jones Brothers Co., Barre, Vt.; Booth Brothers, New York; Hurricane Isle Granite Co., New York; Rockport Granite Co., Rockport, Mass.; W. R. Cheves, Lanesville, Mass.; Hollowell Granite Works, Hollowell, Me.; Ryan & Parker, New York; William Gray & Sons, Philadelphia; J. C. Rodgers, New York; Clark's Island Granite Works, Sawyer Granite Co., Nashua; W. N. Flint Granite Co., New England Granite Co., Boston; George B. Merrill & Co., Lynn, Mass.; W. I. White, Rockland, Me.; Bodwell Granite Co., Rockland, Me.; John L. Goss; William A. Engeman, Brooklyn, N. Y.; and others.

The business of the meeting was largely routine work incident to the first meeting of the organization.

The bill of prices recently prepared by the Quarymen's Association of Quincy was considered, approved and ratified.

It was the sense of the meeting that all localities which enter into agreements as to bills of prices should make them to expire at same date in the year, preferably March 1, and also the same year, to the end that all bills may be considered at the same time by the association.

Instructions to this effect are being sent out by the executive committee.

There was general discussion of the policies which the association may finally adopt which occupied the meeting till a late hour in the afternoon, when the meeting adjourned, after electing the following officers for the ensuing year: President, Seward W. Jones, of Boston; vice presidents, John L. Miller, of Quincy, William Boater, of New York, James Gourlay, of Westerly, C. H. Rogers, of Rockport, O. W. Norcun, of Worcester; treasurer, John Q. A. Field, of Quincy, Mass.

MARBLE.

The Humboldt Marble Works, of Humboldt, Tenn., has been incorporated with a capital stock of \$10,000.00.

The John Pierce Co., of New York City, has been incorporated. The company will deal in marble and granite and has a capital of \$1,250,000.00.

The plant of the Standard Marble Works, Cincinnati, Ohio, was destroyed by fire recently. The loss was \$45,000.00, covered by insurance.

The Berkshire Hills Co. has been incorporated at Yonkers, N. Y., with a capital of \$1,000.00. W. Virtue and W. C. Dodge, of New York City, and W. S. Morse, of Yonkers, N. Y., are the incorporators. The company will quarry marble.

The Acadian Marble Co., of New York, N. Y., has been incorporated with a capital stock of \$100,000.00. The company will deal in artificial stone. The incorporators are: C. S. Cooke, Brooklyn; Max Bowsky and William H. Hopper, of New York.

J. C. Ainsworth, of Wallingford, Vt., has just purchased a marble plant at Jackson, Tenn. He will continue the business in all its branches at the above named city. Mr. Ainsworth was formerly connected with the Vermont Marble Co., at Rutland, Vt.

The Marbleoid Co., New Dunham, N. J., has been incorporated with a capital stock of \$50,000.00. The company will manufacture and deal in all kinds of marble. The incorporators are: Fred W. Page, East Orange, N. J.; Robt. W. Page, Newark, N. J., and F. M. Page, New York City.



ATTRACTIVE DIE MONUMENT CUT BY GLOBE GRANITE CO., MONTPELIER, VT.

Monuments.

Some Southern Monumetal Dealers.

Atlanta, Ga.—Hunter Street seems to be the home of the monument industry of Atlanta, and on Hunter or close to it, may be found the majority of Atlanta shops; but it is probable that this condition will be changed, owing to changes being made in the railroad which is about to vacate some of these properties, for their own use.

Reports as to the business conditions are different with the different firms. While the Atlanta Granite Works and the Atlanta Marble and Granite Co. are reported rather quiet, the Cherokee Granite and Marble Works, and the M. & G. Crouch Co., a little further down the street, both report a very good year's business. We are surprised to note that at these two places they were cutting a Georgia dark granite which appeared to be of excellent quality; it certainly was of good color. There is no reason why this granite should not have wider distribution than Georgia and vicinity.

Dr. Mosley, from his Marietta plant, is also doing business in the city. A talk with Walsh & McAlpine indicated that there had been great activity in the city in the curbing and paving block way. Veneble Brothers also report considerable activity in building, curbing and paving granite, but unsatisfactory labor conditions.

An Historical Monument.

There will soon be erected at Lagos, a suburb of the city of Gaudalajara, a monument to General Pedro Moreno, a hero of the war for Mexican independence. According to history the Spaniards surprised the General's forces one night, and not having time to don his uniform he led the attack attired simply in his underclothes. The battle was one of the great victories for the Mexicans. The plans of the monument have been adhered to historically and the statue will be designed accordingly.

Will Enlarge Their Plant.

BATAVIA, N. Y., January 23.—Worden Brothers Monument Manufacturing Co. will soon begin the enlargement of their plant. This company at present employ fifty men, which will later be increased to seventy-five. They will extend the front end of their main building about 66 feet, making it 266 feet long. They are crowded for space, and find these improvements absolutely necessary.

Business Not Very Brisk.

CULPEPER, VA., January 19.—J. G. Thomas writes us: "Business is dull here just now in both monumental and building stone, but I guess it will open up with the spring. I think Rock Products the best paper of the kind I get."

Getting Out Some Nice Work.

BRYAN, OHIO, January 7.—The Willett Granite and Marble Works send us the following: "We are building slack work, and a few jobs. Keeping men busy most of the time. Have set some nice jobs recently and will send you some photos of same, if they will be of any interest to you."

Believe in Home Production.

ATLANTA, GA., January 11.—The Crouch Marble and Granite Co. has sent us the following communication: "We would ask you to assist us in getting a partner in our business. We desire either a salesman or a practical man, one that can look after the office and yard, and see the work is properly gotten out. We do a wholesale and retail business in granite, and are greatly in need of a good man, but he must have some capital. We feel that we can offer the right man the very best opportunity. We own our plant which is 150x103 feet, with frontage of 150 feet on a railroad, so that we have the best location in Atlanta. We make a specialty of home production and have turned out some nice jobs of Georgia granite."

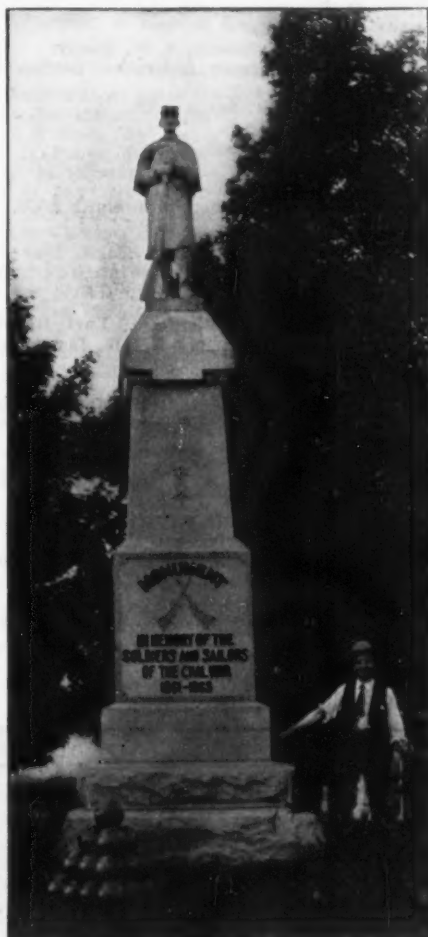
The Flemingsburg Marble Works, Flemingsburg, Ky., report that they are doing a nice business in the monumental line. They have recently made some notable sales.

The Milwaukee Monument Co., Milwaukee, Wis., inform us that Mr. C. C. Goodell, who has been employed with their concern in the capacity of salesman, has severed his connections with them.

The Fred A. Lang Marble and Granite Co., of Parkersburg, W. Va., has been incorporated with a capital stock of \$10,000.00. The company will deal in marble, granite and monumental work.

The Terra Alta Marble Works, Terra Alta, W. Va., has been organized to deal in marble, granite and monumental work. The capital stock is \$10,000.00.

An association of Sons of Veterans has been formed at Cincinnati, Ohio, who will collect funds for the erection of a monument in Spring Grove cemetery to the unknown dead in the American wars. It is expected to have the fund raised before Memorial day.



ERECTED AT ALLEGHENY, N. Y., BY FORNESS BROS., OF THAT CITY.
MADE OF BARRE GRANITE, 26 FEET HIGH.

A monument to the Confederate soldiers buried at Huntsville, Ala., is to be erected by the Daughters of the Confederacy. They have a fund of \$2,200.00.

A monument will be erected to the late Oliver P. Morton. A fund of \$35,000.00 has been appropriated by the State of Indiana. The monument will be erected in Indianapolis.

The Alexandria Marble Works, of Alexandria, Minn., has been incorporated with a capital stock of \$4,000.00. The officers are: W. W. Sheldon, president; G. B. Ward, secretary and treasurer. Monuments and building stone will be the features of the new company. This organization was the outgrowth of J. C. Hurlbut's plant, who still retains an interest in the company.

The Monroe Marble and Granite Works Co., of Monroe, Mich., will make some extensive improvements of its plant in the spring. New automatic machinery and other features will be added to meet the growing demands of the company.

MONUMENT MEET.

The Annual Meeting of the Iowa Marble and Granite Dealers Association.

CEDAR RAPIDS, IOWA, January 18.—Early in the day the lobby of the Grand Hotel showed that there was something unusual doing in the old town. There were many familiar faces seen there, yet but few residents of the place. The officers of the association were on hand early, and Charley Field had his eagle eye on the door to see that none of the members arrived unnoticed, and in his usual frank way, saw that all became acquainted as quickly as possible. By noon about thirty-five or more had arrived, and at 12:30 they proceeded to the dining room in a body, where, through the courtesy of the proprietor of the Grand Hotel, a large table had been set to accommodate all at one board, when the following banquet was served with dispatch, and without toasts or speeches:

MENU

Soup

Red Marble of Tomato	Green Onion
Baked Sea Bass	
Au Granite with Spiced Beets	Sweet Cider
Roast Prime Beef	Potatoes
Cream Chicken on Vermont Marble Slabs	
Rice Fritters	
Bread and Butter Pudding	
Marble Cake and Granite Cheese	
Chilled Shot Sauce	
Hard Nuts	Coffee
Cigars.	

OPENING SESSION.

The meeting was called to order by President F. M. Schwarz about 2 p. m. About thirty-five were present.

On calling to order the president said in brief that it was usual on such occasions to either have a long program prepared for announcement, or that the president should make a long speech, but that this would be the exception which proved the rule, since owing to the fact that there were a great many matters which must necessarily come before the association at this meeting no special program had been prepared, nor was the president going to make any long address, but he did desire to say that he was extremely glad to see the wonderful growth of the association during the last year, and the success with which the organization was meeting all along the line, and that while the large increase in membership was no doubt due to the energy and faithfulness of some of the officers, it had also been very materially helped by the hearty co-operation of every member of the association. He also called attention to the fact that the growth and present condition of the association was extremely healthy, and that this association could well boast not only of a hearty healthy lot of boys, but one of the most handsome lot that could be got together in any state.

"While this association has as one of its objects recreation, pleasure and sociability, which we should encourage at all times, you must not fail to remember, above all things, that we are here for business and that every one of us expects to derive much benefit from such meetings as this, because we are here to talk all matters over in the spirit of true brotherhood. I trust that all will be prompt in attendance and remain until the end, so as to facilitate the transaction of all business." (Applause.)

The regular order of business was taken up at once, and after roll call and reading of the minutes of the previous meeting, which were accepted as read, the following new members were elected: Waterloo—Wm. Crosby, John R. Canty, Charles Sandoe.

Waukon—Bircher & Riley.
Waverley—A. R. Taylor.

Webster City—Dodge & Baker.
West Liberty—C. L. Romaine.
Decorah—J. F. Steele.
Wilton Junction—M. J. McDermott.
Winterset—Clark & Son, S. W. McClintic, Donaldson & Bremer.

Spencer—W. T. Shafer.

While there was some question as to the eligibility of a few of the applicants, discussion and investigation by a committee appointed by the chair resulted in the decision that one of those in question was eligible, and on motion the other application was tabled temporarily, pending further investigation, as it was the desire to live up to the constitution and by-laws to the letter.

Reports of Officers and Committees.

The secretary and treasurer made his report, showing that the finances as well as all clerical matter connected with the association, was in excellent condition. The confidence of the members in their secretary was shown by the fact that when he asked for an auditing committee he was overruled and his report unanimously accepted without question.

The board of directors had nothing special to report.

The report of the Committee on Insurance, which had been appointed at a previous meeting to make some investigation as to the advisability of the Iowa dealers forming a mutual insurance company for their own fire protection, was presented, accepted, and the committee discharged. This report was partially statistical and seemed to indicate that such an arrangement would be desirable and be the means of saving money to those who saw fit to go into it. After considerable discussion on the subject the following committee on Insurance was appointed: J. C. Sullivan, of Creston; C. B. Holden, of Cherokee, and C. J. Field, of Creston.

The next matter brought up was the list of Iowa dealers; this meant a list of all the dealers in the state who actually had a shop and were working or employing some one to actually finish up a job, because it was the desire that the wholesale dealers should accept out of business courtesy, such a list if it were presented to them, so that they might know who were actual dealers, and not small agents traveling over the country with a book of designs. The preparation of such a list had been discussed at previous meetings, and it had been decided to prepare it with a view of presenting same to the wholesale dealers, so that they would have no excuse for selling to agents rather than to dealers, unless they wished to do so knowingly, in which case, of course, such a wholesaler would be considered in disfavor by the other dealers, because it would be an interference with their business interests.

The secretary then read the list as it had been prepared, and after a few corrections it was considered as near correct as it was possible to make it. This will be corrected from time to time and note made of corrections in these columns, that is, if any one goes out of business or any new firm enters, it will be given publicity through our columns.

LIST OF IOWA DEALERS.

*Indicates representation at the meeting.
Ackley—W. H. Saucer.
Albia, W. A. Anderson, O. D. Harding.
Algona—W. L. & A. P. Hall, G. C. Shelley & Co.
Anamosa—S. Wm. Walton.
Atlantic—J. O. Wilken.
Audubon—Deen & Welch.
Allerton—Goughnour Bros.
Bayard—S. M. C. Mercer.
Bedford—M. Miller.
Belle Plaine—*F. J. Rejahl.
Bloomfield—*C. C. McCann.
Bonaparte—C. E. Fuller.
Boone—J. A. Powell, *W. J. Cadd.
Burlington—O. M. Burrus & Bro., Leyda & Co.
Carroll—H. W. Stratmyer & Co.
Cascade—Louis Roux.
Cedar Falls—W. M. Benton, A. W. Bundy.
Cedar Rapids—*Hoffman & Bruner, Searles & Baxter, *J. Ptak.
Centerville—B. F. Richards & Co.
Chariton—Enslow Bros.
Charles City—J. C. Debes.
Cherokee—*C. B. Holden.
Clarinda—John Gilchrist.
Clinton—D. P. J. McDonnell, Wm. Smith & Co.
Corning—C. A. Shafer.
Corydon—C. A. Niday & Co.
Council Bluffs—Sheely & Lane.
Cresco—J. B. Barber.
Creston—*J. C. Sullivan.
Davenport—Davenport Stone Co., Levi Heald, Schrieker-Rodler Co., Lannan & Nelson, James McCaffrey.
Denison—*R. L. Hill.
Des Moines—I. N. Webster, Des Moines Marble and Mantel Co., *Twombly & Anderson, Charles O'Donnell, J. Rowatt.
Dyersburg—*Wm. Machogan.
Dubuque—Frank Lenz, W. V. Gill, Doran Bros. & O'Connor.
Eagle Grove—Dodge & Baker.
Eddyville—A. M. Lafferty.
Emmettsburg—Godden & Ballard, Muga & Co.
Fairfield—W. C. Spalding, Messett & Gilley.
Fonda—L. A. Raymond.
Fort Dodge—Ruge & Koke, A. M. Delano & Son, Wm. Benson.
Payette—J. G. Crubaugh.
Gladbrook—Oldham & Co.
Glenwood—Moore Monument Co.

Grinnell—D. J. Herter.
Guthrie Center—W. C. Frink.
Guttenberg—B. W. James.
Hamburg—Brainard & Wagner.
Harlan—Deen & Welch.
Hosper—A. Dykstra.
Hampton—Dayton & Beringer.
Ida Grove—P. W. Wiggert.
Independence—Lundy & Hatchford.
Iowa City—Yavoursky & Hogan, *Miller Bros.
Iowa Falls—C. E. Patterson.
Jefferson—R. P. Morden, Arnold Marble and Granite Co.
Keokuk—J. T. Crotty, Cameron, Joyce & Schnetder.
Keosauqua—M. Whitney.
Knoxville—Gaiser & Williams.
Lansing—E. J. Roggensack.
Le Mars—*John Bogen.
Leon—*J. A. Harris & Bros.
Lewis—P. S. Dolan.
Lineville—Fuller & Co.
Lisbon—*C. E. Briggs.
Letts—Collins & Shellabarger.
Lyons—Doe Bros.
Lake City—R. E. Hartman.
Manchester—W. J. McIntosh.
Maquoketa—F. W. Wray & Co.
Marble Rock—J. F. Cole & Co.
Marengo—S. M. Stoddard.
Marion—Lutz & Lutz.
Marshalltown—*McNeely Bros., A. W. Smith & Co., Woods & Sherlock.
Mason City—*C. G. Dayton, H. W. Sykes & Co.
Missouri Valley—Terry & Starlin.
Mitchell—Robt. Connell.
Monticello—*J. E. Bateman.
Mt. Ayr—Hadley & Stone.
Mt. Pleasant—Henry Melcher, C. G. Gloecker & Co.
Moravia—Bishop & Son.
Monona—J. A. Briar.
Muscatine—W. J. Varnatta & Co., P. Olson, Becke & Wilson.
New Hampton—Lester Treat, M. J. Robinson.
New London—A. G. Graner.
Newton—*J. S. Agnew & Son.
Nevada—Wm. Smay.
New Vienna—F. St. John.
Onawa—A. G. Wight & Co.
Osceola—N. J. McNichols.
Oskaloosa—F. W. McCall, J. E. Easter.
Ossian—John Heinen.
Osage—James Bros.
Ottumwa—M. B. Root & Son, Ottumwa Cut Stone Co.
Oelwein—C. V. Spezia.
Panora—C. E. Peterson.
Perry—C. D. Oldham.
Postville—E. H. Prior.



IOWA MARBLE AND GRANITE CONVENTION.

Beginning at the left, front row—J. S. Steele, E. W. Hoffman, Z. W. Cole, J. C. Sullivan, F. M. Schwarz, J. S. Agnew, John Harris, R. S. Anderson, A. R. Taylor, H. D. Pierce, R. L. Hill. Beginning at the left, middle row—C. C. McCann, John Bogen, F. S. Cary, C. G. Dayton, J. M. Batchelder, H. C. Moody, Joseph Ptak, Geo. B. Bruner, C. H. More, C. J. Fields, Wm. Machogan. Beginning at the left, back row—S. V. Peppel, Rock Products; F. W. Rejahl, Jas. H. Whelden, R. V. Storer, E. H. Blakley, Fred Reimers, Willis Dunham, W. C. Hosler, J. A. Wadell.

Red Oak—Seefeldt & Hobson, D. B. Greeley & Co., *Z. W. Cole.
 Rock Rapids—John Straitt.
 Randolph—M. N. Anthony.
 Salem—W. T. Wilmeth.
 Sac City—W. B. Wayt & Son, Middlestead & Chalfant.
 Sheldon—Sheldon Marble Works.
 South English—J. W. Sloan.
 Stockport—Bremer & Welch.
 Shenandoah—W. J. Morris.
 Sigourney—Smith & Son.
 Sioux City—N. C. Carlstrom & Co., D. W. Rapalee.
 Spirit Lake—Godden, Ballard & Burt.
 Storm Lake—*F. M. Schwarz.
 Tipton—Connor & Casterline.
 Traer—F. Chrudimsky.
 Villisca—Wm. Christie, Jr.
 Washington—D. Neiswanger & Son, E. T. He-bener & Son.

Report of the Freight Committee was next called for, and the chairman of it, H. D. Pierce, stated that the committee had practically nothing new to report, and that he felt sure there would be no change for the next year in classification, and that the present classification would probably remain, provided the association members used discretion and did not put in any but such claims as were clearly due to negligence on the part of the railway companies. He also pointed out that a change in classification would probably make a difference of about a 20 per cent. increase in freight costs.

Adjourned to meet at 7:30.

EVENING SESSION.

The meeting was called to order promptly and the election of officers proceeded with, after the appointment of the following Committee on Nomination: H. D. Pierce, J. C. Sullivan and C. G. Dayton. While the committee were conferring, preparatory to presenting a list of officers, correspondence in the hands of the secretary was taken up and discussed.

The Nominating Committee presented the following list of names for the various offices: For president, F. M. Schwarz; treasurer, C. J. Field; vice president, Northwestern District, A. R. Taylor; vice president, Northwestern District, J. H. Godden; vice president, Southeastern District, J. S. Agnew; vice president, Southwestern District, J. A. Harris.

Board of Directors—E. H. Hoffman, Z. W. Cole, George S. Baker, H. D. Pierce, F. S. Cary.
 All of whom were unanimously elected.

On motion of Mr. Sullivan, provision was made to in part compensate the secretary for some of the arduous work which he has been doing, for the promotion and betterment of the association and its members.

On motion of Mr. Dayton the expenses of the president were provided for.

Adjourned to meet at 9 o'clock, January 19.

THURSDAY MORNING SESSION.

Meeting called to order with the officers in their places. Rock Products was unanimously elected an honorary member of the association, after a few complimentary remarks had been made by various members. A vote of thanks was next tendered to the various trade papers for the courtesy and co-operation which had been received from them. Another vote of thanks was then tendered to the proprietors of the Grand Hotel, Hamilton & Danielson, for the many courtesies and privileges which the members had received at their hands, and the secretary instructed to notify all those who had been honored by the action of the association.

The next matter taken up was the consideration of a complaint against one of the wholesalers, who is a member of the association, and after investigation by a committee appointed for that purpose, it was found that this wholesaler had violated one of the rules as laid down in the Constitution and By-Laws, and the wholesaler admitted that in the light of the present discussion, the committee could not do otherwise than they had done, and that he was fully satisfied with the penalty which the association had seen fit to impose, and that in future he should be more careful in his dealings, so that there should be no occasion for any mistakes.

After considerable discussion on several sections of the constitution and by-laws, it was thought that it might be possible to amend or modify the

constitution and by-laws, so as to simplify them and possibly make them more clear on some points. With this end in view the following committee was appointed to see what could be done: A. R. Taylor, Wm. Machogan, and Henry McNeely.

After the suggestion of a number of places for the next annual meeting, and an eloquent plea for Waterloo by J. R. Canty, it was decided that it should be held at Des Moines, as this was the most readily accessible point for all concerned. Waterloo was then selected as the place at which the midsummer meeting should be held, and the time for the midsummer meeting should be at the call of the officers.

It was then moved by Mr. Taylor that a program committee be appointed by the chair. The following were appointed: F. M. Schwarz, J. R. Canty and A. W. Bundy.

An invitation had been extended to the members to visit the Iowa Masonic Library and Museum, at the corner of First Avenue and Eighth Street. The association expressed their appreciation of this invitation.

Adjourned to meet at the call of the officers.

OTHER ATTENDANTS.

Besides those noted the following gentlemen also attended the convention:

C. J. Field, Vermont Marble Co., Creston, Iowa; H. D. Pierce, Vermont Marble Co., Chicago, Ill.; Earl H. Blakley, Co-operative Granite Co., Indianapolis, Ind.; Richard V. Storer, agent, Geo. Stratton, Chicago, Ill.; Chas. H. More, Chas. H. More & Co., Chicago, Ill.; James H. Whelden, Rutland-Florence Marble Co., Des Moines, Iowa; F. S. Cary, F. S. Cary Co., Zanesville, Ohio; A. L. MacIntyre, of Winnipeg Marble and Granite Co., Ltd., Winnipeg, Manitoba; J. S. Steele, Decorah, Iowa; W. O. Willison, E. C. Willison Co., Chicago, Ill.; Fred Reimers, Edward Mac Lane, Chicago, Ill.; J. A. Waddell, Marengo Marble Works, Marengo, Ia.; H. C. Moody, Cedar Rapids, Iowa; W. C. Hostler, Foster & Hostler, Chicago, Ill.; J. R. Canty, Waterloo, Iowa; A. R. Taylor, Waverly, Iowa; J. M. Batchelder, of Clarhew & Gray, Dixon, Ill.; S. V. Peppel, of Rock Products, Louisville, Ky.

BY THE WAY.

The officers of this association may well feel proud of their last year's achievements, on account of the large increase in membership, as well as the marked increase in the enthusiasm of its members, both old and new. An association building upon the following aims and objects, certainly deserves marked success:

"The object of this association shall be a general improvement and elevation of the trade in all its departments; the promotion of friendly relations and intercourse, and the protection of purchasers from impositions practiced by illegitimate and irresponsible dealers and salesmen."

The Hoffman-Bruner Granite Co., who were on the entertainment committee, and were represented by the genial owners, E. W. Hoffman and George B. Bruner, were in constant attendance, the first people on the ground and the last to leave, trying to see that all enjoyed themselves immensely. The last afternoon of the meeting they invited all to visit their plant at 113 Third Avenue, although they have recently purchased a new location which will give them much better facilities at 123 Third Avenue, only a short distance from their present location. This firm has been in business here for sixteen years, and is one of the best known in that section, working both granite and marble strictly for monumental purposes. The new plant will be 34x120, with a full line of equipment of pneumatic tools. Their plant has just been bought from Foster & Hostler, of Chicago, and Mr. Hostler jokingly says, "While we have a large stock on hand, and always carry a large stock, we have just bought \$3.00 worth more of granite from Willie Willison to ship from that famous quarry of his away up some where." But Willie told Mr. Hoffman that he was a story teller, and he immediately lost the order. This company carries the largest stock of any retail dealer in the city, and are now putting things in shape to materially increase their stock and output. Two such jovial fellows as Messrs. Hoffman and Bruner certainly deserve a full measure of success.

Another local dealer much in evidence, was Joseph Ptak, who has been in business a great while, and has a nice little place and is doing a prosperous business in his own peculiar way, and there is no question that he will have success as time goes on.

IOWA MONUMENT NOTES.

E. J. Terry, of Missouri Valley, Iowa, purchased the interest of his partner, Mr. Robinson, and since the first of January the firm is E. J. Terry.

There are a number of prosperous purchasers of air plants in Iowa, among whom are C. D. Oldham, Jerry; J. A. Harris & Bro., Leon; D. W. Rapalee, N. C. Carlstrom, of Sioux City, all of Iowa.

J. H. Whelden, a Rutland-Florence Marble Co.'s representative, who married an Eastern lady last fall, spent the holidays in the East, and is now at home to his friends, 1029 West Twenty-first Street, Des Moines, Iowa.

John Malquist, of Sioux City, who has been in the monument business for the last two years, has finally decided to retire, and has sold his stock and good will to the other two dealers in the city, D. W. Rapalee and N. C. Carlstrom.

We recently had the pleasure of calling on the Star Marble and Granite Works, Fort Dodge, Iowa, and we undertook to chide our friend, Mr. O. Koke, about not being at the meeting, but we took it all back when Mr. Koke said he was the proud father of a pair of twins, otherwise he should have been there.

The Northwestern Marble Co., Crookston, Minn., who are known as the Crookston Marble Works, has finally won its suit against another firm which started up, and detracted from their business. In a suit of two years' duration the Supreme Court finally decided that the new firm could not use the title of the former company.

The Thompson & Carroll Granite Monumental Works, West Laurel Hill, Pa., was partly destroyed by fire on January 13. The loss was \$10,000.00, partly insured.

C. Scharger & Son, of Delphos, Ohio, have just purchased the monument works of M. J. Walz, at Defiance, Ohio. Mr. Walz will retain the management of the plant.

Unger & Son have succeeded Michael Unger, at Columbus, Ind. They are large monument dealers and the business will be considerably increased by the acquisition of increased capital.

The La Crosse Monumental Works, La Crosse, Wis., has been organized with a capital stock of \$25,000.00. Jos. G. Frantzel, Ernest J. Stein and Joseph A. Gardner are the incorporators.

The Savannah Monument and Undertaking Co., of Savannah, Ga., has been organized with a capital stock of \$4,100.00, all paid. The incorporators are: John L. Hughes, Fred Hartley and Rebecca R. Hughes.

The Supervisors of the Forty-eighth Pennsylvania Regiment have made plans to erect on the Crater battlefield, in Prince George County, near Petersburg, Va., a handsome granite monument, to cost about \$7,000.00.

The Covington and Oxford chapters of the Daughters of the Confederacy, of Covington, Ga., have completed the fund of \$2,500.00 for the erection of a monument. The same will be ordered within the next few months.

The Greenwood Granite and Construction Co. has been organized at Greenwood, S. C., by T. J. Snyder, president; Frank E. Graham, of Augusta, secretary and treasurer. Both are well known business men and have already secured several important contracts.

The Zochert Monumental Works of Wausau, Wis., have undergone several changes in ownership during the last summer. Some time ago Mr. Nickerson and Mr. Goltz bought the plant and recently Lewis Melzer, who is a practical marble and granite cutter, bought out the interest of Mr. Nickerson and the firm is now Melzer & Goltz.

Preliminary steps have been taken for the organization of the New Bedford Granite Co., of New Bedford, Mass., with a capital stock of \$20,000.00. The company will take over the granite quarries near Lincoln Park, between New Bedford and Fall River. The stockholders include a number of prominent French-Americans. The output of the quarries, granite blocks for paving and building, will be handled over the Dartmouth and Westport street railway.

Cement.

Increasing the Capacity.

The mill of the Castalia Portland Cement Co. at Pittsburg, Pa., was shut down on December 10, for the purpose of overhauling the machinery and installing new machinery to again increase its output. This will be the fifth time additions have been made for increasing the capacity within the past eight years. It seems the company can not keep up the demand for this very high grade of cement. With the additional machinery that it is now installing, the output for the coming season is expected to be 2,000 barrels per day.

Prosperity Ahead.

George T. Burridge, of the Newago Portland Cement Co., Grand Rapids, Mich., says: "Our sales and deliveries will be about three times those for 1904 and at a good fair price. Inquiries are very numerous, indicating a desire on the part of large and small buyers to purchase early. The outlook for an advance in price at an early date is very promising."

New Canadian Cement Companies.

The Sydney Cement Co., Ltd., capitalized at \$500,000.00, proposes to build a plant at Sydney, B. C., that will have a capacity of 500 barrels of cement a day. There will be a large coöperation concern connected with the plant that will be capable of turning out 20,000 barrels a year. Operations will begin by the end of May.

The cement will be made from the slag to be had from the Dominion Iron and Steel Co., which adjoins the site selected for the new plant. The process, according to the promoters, will enable them to make cement at a less cost than at other cement works.

It is also announced that Sir Sanford Fleming will probably establish a cement plant in Kananaskis's Fall, Man. His plans are said to be quite elaborate.

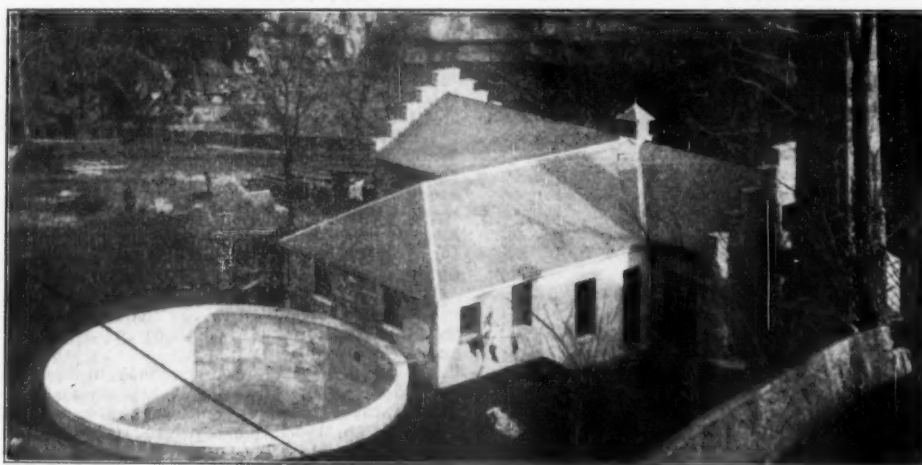
A Mistake Corrected.

In an article in the January issue of Rock Products, describing the plant of the Whitehall Portland Cement Co., the statement was erroneously made that the general offices were located at 712 Reading Terminal, Philadelphia, Pa. They were formerly of that place, but were removed some time ago to rooms 1723 to 1725 Land Title Building, Philadelphia, where they now are. The sales department occupies rooms 1719 to 1722 in the same building.

Invents Waterproof Cement.

A waterproof cement has recently been invented and patented in Germany. A mixture of vegetable wax and caustic lime in boiling water is added to unground Portland cement clinker, which are ground together. The claim is made by the inventor that a half inch coating of this cement placed on a brick wall will make it absolutely waterproof. The formula as given is as follows: To each two cwt. of cement clinker is added a mixture of three-fourths of a pound of Japan vegetable or berry wax and one ounce of caustic lime, which has been dissolved in fourteen pints of boiling water. These ingredients are thoroughly mixed, and when cooled is dried and ground very fine with cement clinker.

The name of the Chanute Cement and Oil Co., of Chanute, Kan., has been changed to the Chanute Cement and Clay Products Co., and the stock reduced from \$6,000,000.00 to \$4,500,000.00. One of the largest Portland cement plants in the country will be built at Chanute. It will cost \$1,500,000.00.



DANVILLE WATER WORKS.

The Standard Ferro-Concrete Co., of New York, has been incorporated with a capital stock of \$75,000.00. The incorporators are: P. B. Cavanaugh, A. G. Bradford and Clyde Colt, of New York.

Danville, Ky., Waterworks.

We illustrate a comprehensive view of the plant of the Danville Waterworks, which is a very successful concrete operation just completed by the Southern Roofing and Paving Co., Louisville, Ky., contractors, under the direction of Mr. C. S. Hall, their chief engineer. The circular reservoirs as well as the pumping station are entirely of concrete construction.

A New Apparatus for the Direct Determination of the Specific Gravity of Cement.

[An abstract from the paper presented before the New York section of the Society of Chemical Industry, by Mr. Daniel D. Jackson.]

It is a well known fact among the chemists that the method ordinarily used for the determination of specific gravity of Portland cement is subject to errors, because those methods which are accurate consume too much time for ordinary routine work. Aside from this, it seems that most manipulators have neglected the fact that there is considerable error introduced by slight changes of temperature in kerosene during the determination.

Mr. Jackson uses an apparatus designed by himself which is being built by Emil Greiner, 78 John Street, New York City, the burette of which is so graduated as to read specific gravity instead of volume when the flask and apparatus have been

made the standard size and standard marking. The flask used is a heavy Erlenmeyer of 200 cubic centimeter capacity with a ground glass stopper which is hollow and has a bore the same size as the bore of the burette. The burette has a bulb at the top so as to carry in this position 180 centimeters filled to the graduation mark at the top which is narrow, and 20 cubic centimeters in the bore of the burette proper. The whole apparatus is designed and graduated for the use of 50 drams of cement. The procedure in brief is as follows:

Weigh out 50 grams of dry cement accurately to one-tenth gram. Fill the burette and bulb with kerosene to the top graduation, seeing that all air is removed. Run about half this into the Erlenmeyer flask, add 50 grams slowly and remove air bubbles by gentle rotation and wash down the sides with more kerosene from the burette. Then place in the ground stopper, seeing that it is carefully fitted and then add sufficient kerosene to bring it up to the mark, observing that no air bubbles remain in the flask. The reading of the burette then indicates specific gravity. The temperature of the kerosene should be observed before the cement is added and also at the end of the determination.

The burette reading should then be corrected as indicated in the table herewith.

It was thought possible that there might be sufficient variations in different brands of kerosene to introduce an error into the determination. The accuracy of the operation when carefully conducted is 0.01.

Mr. Jackson further states that no cement should be accepted which is below 3.05 in specific gravity.

CORRECTION IN SPECIFIC GRAVITY IN VARIOUS PORTIONS OF THE GRADUATED SCALE DUE TO CHANGE IN TEMPERATURE, CENTIGRADE, DURING THE DETERMINATION.

Read the temperature of the oil in the bulb before the determination and of the oil in the flask after the determination. Add the correction if the temperature of the oil increases, and subtract it if it decreases.

Change in Temperature.	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Centigrade.	to	to	to	to	to	to	to	to	to	to
0.2 degs.....	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.4 degs.....	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
0.6 degs.....	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.8 degs.....	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03
1.0 degs.....	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04
1.2 degs.....	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05
1.4 degs.....	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06
1.6 degs.....	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.07
1.8 degs.....	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.07
2.0 degs.....	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.08	0.08
2.2 degs.....	0.05	0.06	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.09
2.4 degs.....	0.06	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.10	0.10
2.6 degs.....	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.11
2.8 degs.....	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.12
3.0 degs.....	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.12	0.13
3.2 degs.....	0.07	0.08	0.09	0.09	0.10	0.10	0.11	0.12	0.13	0.14
3.4 degs.....	0.08	0.09	0.09	0.10	0.10	0.11	0.12	0.12	0.13	0.14
3.6 degs.....	0.08	0.09	0.10	0.10	0.11	0.12	0.12	0.13	0.14	0.15
3.8 degs.....	0.09	0.10	0.10	0.11	0.12	0.12	0.13	0.14	0.15	0.16
4.0 degs.....	0.09	0.10	0.11	0.12	0.12	0.13	0.14	0.14	0.15	0.16
4.2 degs.....	0.10	0.11	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17
4.4 degs.....	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.16	0.17	0.18
4.6 degs.....	0.11	0.12	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19
4.8 degs.....	0.11	0.12	0.13	0.14	0.15	0.16	0.16	0.17	0.19	0.20
5.0 degs.....	0.12	0.13	0.14	0.14	0.15	0.16	0.17	0.18	0.20	0.21

Lime.

The National Lime Manufacturers' Association.

Meets Semi-Annually.

CHAS. WARNER..... President.
Chas. Warner Co., Wilmington, Del.
PETER MARTIN..... First Vice President.
Western Lime Co., Huntington Ind.
O. F. PERRY..... Second Vice President.
Rockland-Rockport Lime Co., New York City.
W. B. HILL..... Third Vice President.
Ash Grove Lime Association, Kansas City, Mo.
C. W. S. COBB..... Treasurer.
Glencoe Lime & Cement Co., St. Louis, Mo.
E. H. DEFEBAUGH..... Secretary.
Rock Products, Louisville, Ky.

Official Organ, ROCK PRODUCTS.

COME!

NATIONAL LIME MANUFACTURERS' ASSOCIATION.

NEW YORK CITY, HOTEL ASTOR, FEB. 13, 14, 15, 16, 1905

SESSIONS:—

DIRECTORS' MEETING, 1 O'CLOCK, FEBRUARY 13.
9:30 A. M. and 2:00 P. M., FEBRUARY 14.
9:30 A. M., FEBRUARY 15.

PROGRAM.

Roll Call.

President's Address.

Secretary's Announcements.

Receiving Reports of Standing Committees:

Publication and Information—A. Newton, Chicago, Ill.; Charles Warner, Wilmington, Del.; A. A. Stevens, Tyrone, Pa.; J. E. Baker, Wrightsville, Pa.; W. S. Sutliff, Fostoria, Ohio; Peter Martin, Huntington, Ind.; J. C. Paxton, Toms Brook, Va.

Barrel or Lump Lime—Peter Martin, Huntington, Ind.; W. B. Hill, Kansas City, Mo.; A. A. Hurst, Maquoketa, Iowa; O. F. Perry, New York City; A. A. Stevens, Tyrone, Pa.

Hydrated Lime—Charles Warner, Wilmington, Del.; O. F. Perry, New York City; R. S. Thurstin, Toledo, Ohio; H. P. Dodge, Toledo, Ohio.

Election of Officers.

New Business—Appointment of Committees; Suggestions for future work of the association; Directors' Recommendations.

Paper on "Tests and Uses of Lime and Hydrated Lime" by E. W. Lazell, of Hy. S. Spackman Engineering Co., Philadelphia.

Paper on "Hydrated Lime; Its Manufacture and Sale."

General Discussion.

Paper, "Principles of Drying, and Drying Apparatus," by Wm. B. Ruggles, of Ruggles-Coles Engineering Co., New York City.

Discussion on "The Sand-Lime Brick Industry, Particularly Applied to Relation, Characteristics and Working of Different Limes in Making this New Material."

Adjournment.

THURSDAY.

Visit to the Cedar Hollow and Whiteland plants of the Charles Warner Co. Special car will be arranged for from Philadelphia to Cedar Hollow. Further Social Features will be announced.

AN INVITATION.

To the National Lime Manufacturers' Association: In connection with the National Lime Manufacturers' Association meeting called for New York City on the 14th and 15th of February, we desire to extend to all members of this association a cordial invitation to visit our Cedar Hollow and

Whiteland Lime plants on Thursday, February 16.

The plants are located about twenty-five miles from Philadelphia, and owing to their proximity to New York we thought it might be of interest to some members of the association to look them over. If a sufficient number should decide to do so, arrangements for making the trip can be greatly facilitated at nominal cost by engaging a special car from Philadelphia, which will save considerable time and inconvenience due to a wagon ride of three miles that is otherwise necessary.

I would be glad to have all those advise me at an early date who might care to make this trip, and I will endeavor to make the best arrangements possible at cost that should not exceed \$2.00 a person for the trip from Philadelphia and return.

Trusting that our next meeting will be a very successful one, I beg to remain,

Very truly yours,

CHAS. WARNER Co.,
CHAS. WARNER, Vice President.

WILMINGTON, DEL., January 25, 1905.

Extensive New Kentucky Plant.

G. M. Patterson, secretary of the Rockcastle Lime and Gas Co., Mt. Vernon, Ky., says his company is now about ready to begin the construction of its kiln, which will have a capacity of one hundred and fifty barrels daily. It expects to be ready to put its product on the market in the early spring.

Last summer The Rockcastle Development Co. was incorporated, consisting of parties residing both in Lancaster and Mt. Vernon, Ky., for the purpose of drilling for oil. The first well was put down about one mile north of Mt. Vernon, near the Louisville and Nashville railroad. At a depth of about six hundred feet a fine flow of gas was struck. The flow has increased in pressure until it is now estimated to be close to 100 pounds. Well No. 2 has just been completed. This is located in the northern portion of the village of Mt. Vernon, right along side the railroad tracks. This is as good a well as No. 1, if not better.

After striking gas in well No. 1 The Rockcastle Lime and Gas Co. was formed for the purpose of utilizing the gas in the manufacture of lime. There is an abundance of limestone in the locality which assays 97 per cent. pure lime, and which is easily reached by a switch from the railroad and in close proximity to the company's wells.

A Successful Process.

Charles C. Kritzer, of the Clyde Iron Works, Duluth, Minn., was in Louisville last week and paid Rock Products a call. Mr. Kritzer is pushing the sales of the hydrating apparatus made by his company and meeting with great success. The great value of what he has to offer is becoming more fully recognized every day. Mr. Kritzer says that the Charles Warner Co., of Wilmington, Del., were at first very skeptical regarding his company's being able to hydrate lime along the lines it uses. However, he says they took the matter up and after some very thorough experiments have informed him that they consider his company's method the best way of handling the hydrating lime proposition.

Mr. Kritzer is an enthusiast on the subject of hydrated lime and what he has to say of it is of interest and value. Among other things he describes the lime as gaining in volume and weight by the hydrating process as well as in value.

Will Double Output.

The Ocala Lime Co., Ocala, Fla., has increased its business by adding two kilns, each of 60 barrel capacity. The demand for the company's lime has steadily increased. During 1904 it manufactured 40,000 barrels, and announces that it will double that number in 1905. The sand-lime brick industry is on the boom in that part of Florida. Conditions generally are described as prosperous, with much activity in the building line.

The White Marble Lime Co. has been organized at Nashville, Tenn., with a capital stock of \$5,000.00. The incorporators are: J. L. Boyd, J. S. Pepper, D. H. Jenkins, T. G. McConnell and H. B. Lindsay. The Chemical Lime Manufacturing Co., of Connelville, Pa., has been organized. The capital stock is \$25,000.00, and the officers are: D. Bailey, president; J. J. Huston, vice president; John C. Shaw, secretary and treasurer; A. C. Bailey, general manager.

New Pennsylvania Lime Kilns.

Arrangements have been made to establish extensive kilns for the manufacture of slack lime at the plant of the Marquis Limestone and Clay Co., at New Castle, Pa. The kilns will be built as soon as the weather permits, and being at the quarry where the lime is a by-product of the limestone, will undoubtedly prove a profitable investment. The enterprise will be carried on under the corporation name of the Marquis Co., which absorbed the Portland Cement Co., organized last year at the same time it took in the limestone interest. The output of lime will be quite extensive. The district where the cement works, lime kilns and quarries are located will be the scene of great activity during 1905.

Business Good in Florida.

J. B. Webb, manager of the Standard Lime Co., of Kendrick, Fla., has this to say: "Our business for the last year has been exceptionally good. We shipped during the year 1904, 49,245 barrels of lime, an increase over 1903 of 6,608 barrels, and the business outlook for 1905 is very encouraging in the lime trade. There are two or three sand-lime brick companies starting up to make brick which will increase the demand for lime considerably. We are contemplating making some improvements this year, and will let Rock Products know when we have decided upon them and what they will be."

Hydrated Portland Lime.

The Chickamauga Cement Co., Chattanooga, Tenn., is meeting with great success in marketing its new product, hydrated Portland lime, which it is making in addition to Dixie rock cement.

This material is something new in hydrated limes, as it contains a very strong cementing element, and while possessing all the characteristic properties of ordinary hydrated lime, acts more like a cement in the manner of its setting. Mortar made with it will harden under water.

When masonry is laid with it the mortar joints become firm and hard after a few days, and it's use does away altogether with the necessity of artificially mixing cement with lime mortar in work ordinarily demanding it.

For a hard wall plaster hydrated Portland lime is said to be ideal. Its manufacturers state a ton will easily make mortar enough to cover from 400 to 450 yards. It dries out quickly, sets hard and fast, and makes not only a fire-proof but a water-proof wall.

The Use of Lime in Wall Plaster.

"There was a time when practically nearly all of the wall plastering was done with lime and sand," said F. F. Freeman, of the Rogers' White Lime Co., Rogers, Ark., recently. "To the loss of the lime manufacturer the use of lime for this purpose has been largely supplanted with other materials in recent years."

"We are of the opinion that the lime manufacturers should unite in an effort to regain this lost trade. High grade pure white lime and good clean sand, when properly used, undoubtedly makes a very fine wall plaster at a very much lower cost than other materials used. If, by a campaign of education, the plasterers of the country can be taught to mix lime and sand properly and apply it properly, we believe that lime can be restored to the place it once occupied as a plastering material, and the public can be saved much money by the use of it for this purpose. If a hard wall plaster is desired, it can be produced very cheaply by adding a little cement to the lime and sand. We hope the lime manufacturers generally will give this subject some thought with the view to increasing the use of lime."

J. E. Williams, proprietor of the Cascade Lime Works, at Great Falls, Mont., whose plant was recently burned, announces that he will rebuild it.

The Port Byron Lime Association has incorporated at Rock Island, Ill., with a capital stock of \$25,000.00. The incorporators are: David S., Geo. A., Homer C., and Marcella R. Metzgar.

The Harper's Ferry Lime Co., of Millville, W. Va., has incorporated with a capital stock of \$250,000.00, of which \$40,000.00 has been subscribed. The incorporators are: John T. Bankard, William M. Reese, David A. Reese, of Pittsburg, Pa.; John P. Martin and Henry J. Finley, of Washington, D. C.

Roofing.

The National Association Master Composition Roofers.

J. B. Ohligschläger, Louisville, Ky. President
J. W. Moore, Providence, R. I. First Vice-President
Peter LeGoulan, Pittsburg, Pa. Second Vice-President
W. K. Thomas, Indianapolis, Ind. Acting Secretary

DIRECTORS.

E. S. Bortel, Philadelphia, Pa.
H. W. White, New Orleans, La.
C. B. Jameson, Buffalo, N. Y.

The Executive Board consists of the officers and directors.

Committee on Laws: E. F. Shaffer, Columbus, Ohio; A. B. Bartholomew, Memphis, Tenn.; C. A. Monks, Louisville, Ky.

Official Organ Rock Products.

THE OBJECTS OF THE ASSOCIATION ARE:

To maintain an organization for the benefit of persons engaged in the business of Composition Roofing; to promote uniformity in the customs and usages of Composition Roofers, to inculcate principles of justice and equity in business; to acquire and disseminate among its members valuable information in reference to the matters and methods of doing work; to establish and secure the use of a superior quality of material and workmanship; to facilitate the speedy adjustment of business disputes; to aid and encourage the formation of local organizations, where practicable, and generally to secure to its members the benefits of co-operation in the furtherance of their legitimate pursuits.

Official Announcement of Convention.

The fourteenth annual convention of the National Association Master Composition Roofers of the United States will meet in Indianapolis, Ind., February 16 and 17, 1905, instead of the 20th and 21st, dates formally announced. The headquarters will be at the Claypool Hotel. Meeting to be called to order at 10 a. m.

Greeting: To the Master Composition Roofers of the United States who are eligible to membership in this association and specially to the members—We invite your co-operation at this time. At no time in the history of this organization has there been a more urgent reason for your presence at Indianapolis. The convention is called at a season of the year when our business is generally dull, so that being away a few days will not seriously interfere with your business. Members in localities where fire insurance companies discriminate in favor of other roofing material, are especially urged to be with us. We hope to welcome you at Indianapolis, and interest you, too. We believe you can make no better investment of your time at this season of the year.

Very truly,

J. B. OHLIGSCHLAGER, President.
WM. K. THOMAS, Acting Secretary-Treasurer.

Another Roofing Material.

A new roofing material is now being made from sheet zinc, which is attracting the attention of a number of builders and contractors. This new industry promises well, if we may judge by the reports in its favor. In a Kansas town recently, a manufacturing concern donated a sheet zinc roof to a large building as an advertisement for its product. As to its future popularity it is hard to surmise, though we doubt if it will make any material inroads on other roofing materials now in use.

Rosy Prospects Ahead.

BIRMINGHAM, ALA., January 31.—Mr. E. E. Squier, Jr., formerly of St. Louis, Mo., but who recently has become secretary of the Geo. F. Wheelock Co., says the building outlook in this vicinity was never brighter; in fact, all indications point toward this year as a record-breaker both as to the number and the size of building operations. This firm operate extensively in the roofing line, composition, tin, slate and, in fact, every kind, besides conducting a large galvanized iron establishment for cornices, window caps, skylights, etc.

A New Asphalt Paving.

Practical tests have recently been made in Paris of a new material for street construction, which have proven very gratifying. It is well known that asphalt pavements have thus far been unable to withstand the severe tests to which they are frequently subjected. Within a few months the streets paved with ordinary asphalt show signs of wear; these, in some instances, becoming of serious proportions after a protracted wear.

The new material, known as granite asphalt, is composed of mineral matter—largely granite particles—which are treated under certain conditions of temperature and handling. The same boiler is used for this mixture as that used for ordinary asphalt, and at a given temperature it is said a re-action takes place, which, with a subsequent treatment so changes the properties of the composition as to make it peculiarly hard. The claim is made that it is capable of resisting the dissolving action of acids, oil and fats which so rapidly attack ordinary asphalt. Owing to its high resistance to wear granite-asphalt has been classed with granite and other very hard stones. The granite grains adhere so closely to the asphaltic gauge that it was found impossible to separate them in any of the tests made.

Cement Roofing Shingles.

Cement shingles for roofing purposes are now being manufactured at Saginaw, Mich. A company, which was recently organized in that city for the manufacture of shingles from Portland cement is finding an increasing demand for its product. These shingles are made over a metal reinforcement that terminates in loops at either side in order to nail them securely to the roof. They are half an inch thick at the butt end with a slight taper. Any width, shape or color desired can be readily manufactured, and the price is about equal to slate or the best wood shingles. They can be easily handled and shipped with little danger from damage. It is quite probable that these shingles will become popular as a roofing material, as their durability and cheapness are essentials highly in their favor.

The Atlas Roofing Co., of New York, N. Y., has just been incorporated with a capital stock of \$5,000.00. The directors are: H. A. Daniels, Rondout; H. V. Carrere, New Brighton; R. E. Chamberlin, New York.

The Roswell Cement Roof Co., of Roswell, N. M., is a new organization just incorporated with a capital stock of \$10,000.00. The directors are: A. L. Nilsson, A. M. Nilsson and Oliver Pearson, all of Roswell.

The Celadon Roofing Tile Co., of Ottawa, Ill., will shortly dispose of its plant and discontinue operations. The company will consolidate its interests in New York State. It is reported that the plant was only a temporary one in Ottawa.

The Decatur Cornice and Roofing Co., of Decatur, Ill., has just been incorporated with a capital stock of \$10,000.00. The incorporators are: William F. Stewart, Frank H. Stewart and Charles A. Nicholas. The company will manufacture sheet metal roofing.

The Fairview Slate Corporation has been incorporated at West Hoboken, N. J. The capital stock is \$125,000.00, divided into \$75,000.00 preferred and \$50,000.00 on common stock. The incorporators are: George V. G. Klein, Walter W. Mengel and Edouard Gildard. The company will own, operate and control slate quarries and mines. It will also manufacture and deal in roofing and other slates.

Michigan's Salt Output.

The total salt production in Michigan for 1904 was 5,390,812 barrels. This is considerably more than was produced in the previous year. Of the eight salt producing districts in the state only six were in operation last year. Wayne County produced the largest amount of any one county, having a record of 472,580 barrels. The outlook for the present year is quite encouraging for this industry, though much depends upon the coal operators who have held the price of coal so high that it has materially interfered with the manufacture of salt.

T. H. Brown, president of the Sterling Salt Co., Sterling, Kan., has purchased the interest of P. P. Trueheart and J. C. Turner. By these acquisitions he becomes the sole owner. A number of notable improvements will be made, it is said, and the business generally improved.

C. A. Black, A. E. F. White, W. H. Miller and others of Detroit, Mich., are interested in a project to sink a shaft for the purpose of mining rock salt. The shaft is on land adjoining the Rouge River Salt Co., near Detroit. It is estimated that it will take two years to complete the tests, which, if successful, will prove of much value. In the event that the plans prove of sufficient value, the Rouge River Salt Co. will be consolidated with the new concern and a large plant established.

SLATE.

Slate Quarries in Great Britain.

The largest underground slate quarries in Great Britain are those of the Oakeley Slate Quarries Co., Ltd., at Festinlog, which had an output in 1903 of 46,351 tons. The Penrhyn quarry, near Bangor, and the Dinorwic quarry, near Carnarvon, are the largest open quarries, doing an extensive business. In North Wales three-fifths of the Welsh slate is produced from open quarries, the remainder being mined from underground excavations. This includes both slate and slate slabs, which comprise the material used for both interior and exterior work.

Anticipate a Busy Year.

SLATINGTON, PA., January 23.—D. McKenna writes us: "The prospects for the slate trade this season are exceedingly good. Business is coming in very satisfactorily, and the placing of orders for early spring shipments are very encouraging. We are anticipating a busy year."

Vermont Second in Production.

MIDDLEBURY, VT., January 17.—A letter from the Brandon Italian Marble Co. says: "We note your article on slate in the January issue of ROCK PRODUCTS, in which you say that New York and Pennsylvania produce the largest amount of roofing slate. Permit us to say that Vermont stands second as the slate producing State of the Union in this line. According to the government statistics for 1903 Pennsylvania produced in value \$3,959,906.00; Vermont, \$1,592,652.00; New York, \$145,401.00, and this includes the New Jersey production. Vermont produces unfading green, purple, sea green, variegated, gray and black slate, something that can not be said of any other State. We mention these facts so that your readers may know that we are a close second in the slate line. We have read your publication with much pleasure, each month, and think it is one of the best journals in its line that is published."

It is probable that a syndicate will be formed to operate the slate quarries at Northfield, Vt. In the event of its being successful a slate mill will be erected, similar to the one at Poultney, for dressing slate.

The Joseph Wise Co., of Portland, Pa., school slate manufacturers, has resumed operations after being closed down for several months. The company employ thirty operators.

The Cracker Slate Co., of Mena, Ark., has been organized with a capital stock of \$100,000.00. Of this amount \$50,000.00 has been subscribed. The officers are: John A. Sherman, president; George T. Meyer, vice president; George H. Steen, secretary and treasurer.

BIG CLEVELAND MEETING

National Builders Supply Association Hold Their Sixth Annual Convention at Cleveland.

LARGE ATTENDANCE AND GROWING INTEREST.

CLEVELAND, OHIO, February 6.—The lobby of the Hollenden Hotel was early astir with the arriving delegates and those who had reached the city the previous night.

TUESDAY MORNING SESSION.

The opening session of the sixth annual convention of the National Builders' Supply Association was held in the Palm Room of the Hollenden Hotel at 10:15 o'clock this morning. The hour set on the program was 9 o'clock, but the members of the Association were slow in assembling and messengers were sent to the lobby to call out that President Kling's gavel was about to fall before the crowd began at last to move toward the convention hall. Other features of the program were not carried out as announced. Hon. Tom L. Johnson, Mayor of Cleveland, was to have welcomed the Association, but was detained by illness and his place was filled by Newton D. Baker, city attorney.

President Kling, in opening the meeting, commented upon its importance, saying that he scarcely need refer to what was so well understood. He hoped nobody would be disappointed in the results looked forward to. Commenting upon the fact of Mayor Johnson's not appearing, he explained he had been ill for a fortnight. However, he states that as a worthy substitute he would introduce Newton D. Baker, who stood at the head of the city's law department.

Mr. Baker was applauded as he arose to speak. He said those familiar with the life of Oliver Wendell Holmes knew that he was in stature a small man. They also were doubtless informed that he had, at the age of twenty-two years, written a number of speeches on various subjects and carefully stowed them away in the hope that a suitable occasion would present itself for delivering them.

President Jones, of Harvard college, was invited to deliver an address at a notable occasion at Dartmouth. Mr. Jones was a man who weighed 300 pounds. At the last moment he was detained by sickness and wrote Holmes asking him to fill his place. Holmes, in speaking of the matter to some friends, remarked that he could not hope to fill Dr. Jones' place, but would do his best to wobble around in it.

Mr. Baker said he seemed to spend a large part of his time in substituting for Mr. Johnson, as on the present occasion. Mr. Johnson, being invited, would always say he would be glad to go, but invariably through, through no fault of his, would be detained by illness. Then Mr. Baker said he would have to go in his stead and the people would tell him that they were glad to get him, as they couldn't get Johnson. The crowd was amused at Mr. Baker's remarks.

Continuing, he said there were always certain formalities connected with welcoming a convention to a city. In olden times the chief executive would turn over the keys of the city to the visitors and see to it that the police officers were kept in the background till visitors got away. Most of these ancient promises were made to conventions today. Mr. Baker hoped that none of the men who heard him would get in trouble with the uniformed guardians of the law and in case they did he told them to telephone to him and he would see what he could do in their behalf.

Mr. Baker said that Cleveland to him had become a very great city in a very short time. He

was a young man and it seemed to him the city had grown to its present great proportions by magic.

Cleveland had so far stepped to the front in building matters that she has adopted a building code, the best in existence according to the speaker's belief. It was not perfect and there was a constant effort to make it better. The code was now being developed and it was imposing new restrictions and harder conditions on the men who furnish the supplies, inspiring more careful effort and assuring a greater excellence in the buildings going up in the city. To such a city, progressive and beautiful, he welcomed the convention. Mr. Baker's address was cordially applauded as he took his seat.

President Kling thanked Mr. Baker for his cordial welcome. He added that it was grati-



JOHN A. KLING, CLEVELAND, OHIO, RE-ELECTED PRESIDENT.

fying to him that the president of the Cleveland Builders' Exchange had solicited the privilege of speaking a few words of welcome to the members of the convention on the part of that organization. It was a kindred organization and it gratified the speaker to know that harmonious relations existed between them. He then introduced Mr. W. M. McAllister.

Mr. McAllister said he spoke as representing the builders' interests. He did not intend to make a speech, but merely wanted to add a few words of welcome on behalf of his organization to those which Mr. Baker had already spoken. He hoped the members of the convention would have a pleasant and profitable visit. He felt they had honored Cleveland by coming and also by electing a Cleveland man president. The organization of which he was a member was formed on similar lines. Referring to the attractions of Cleveland in the way of handsome buildings, he said he would not describe these as they were there to see. He said Cleveland had undertaken

a great improvement in the way of an artistic grouping of its public buildings on the lake front. He hoped when the gentlemen he saw before him came again they would see these improvements completed. It was not his intention to make a lengthy speech, but he wanted to say that the officers of the Builders' Exchange wanted the visitors to make that place their headquarters. Thursday evening, he said, they were all invited and would be hospitably entertained. Cleveland had what he believed was the largest Builders' Exchange in existence. Mr. McAllister was applauded as he closed his remarks by again welcoming the convention to Cleveland.

President Kling stated that he was down on the program for a speech, but that was a mistake, as he did not intend to make any. He then asked that all who were not active members retire from the room, as the organization would then go into executive session.

The executive session lasted till noon and was resumed in the afternoon, lasting till nearly 6 o'clock.

EXECUTIVE SESSION.

At the executive session in the afternoon, among the first matters for consideration was the recommendations of the executive committee, and second was to hear the remarks of the Committee on Reciprocity, composed of E. F. Hunter, of Chillicothe, Ill., and H. A. Gorsuch, of Kansas City, Mo. Their suggestions had already been heard by the executive committee, and the recommendations to the association by that committee were also received. It was thought wise by the association to discuss the matter further and if possible to affiliate with them.

President Kling's Remarks.

It has been well and truly said success is perspiration. Thus it has been with The National Builders' Supply Association from its inception. Things which seemed the most difficult and gave the least promise of being accomplished have been, by persistent effort, conquered, and are to-day monuments in the form of benefits to all of our members. We have been advised times without number that an association of this nature was impracticable, not only because of the improbability of its being able to accomplish its purposes, but that its members' needs were so diversified, there could be no uniformity of action and purposes, hence no chance for success. It is with great satisfaction that we look back upon the years which have passed since its humble and unpretentious beginning and view the lasting benefits which have come to its members as a result. You are no doubt fully conversant with the purposes of our association and the results accomplished and I feel confident that you will agree with me that we owe to the association many things for which we should be truly thankful.

During the past year I have had occasion to visit many dealers and manufacturers in their home cities in different parts of the country, meeting them personally and explaining the purposes of our association, its object, and its intentions, and have had the pleasure of seeing fruits of my various visits in the shape of additional membership. The majority of those with whom I came in personal contact recognized the benefits to be derived from our association and decided to join hands with us and assist in the good work. Some of these have proven to be of great benefit to the association and we are confident that all who have joined will find that the association is beneficial to them in more ways than one. I am also pleased to state that I have had the promises of quite a number of dealers who were not ready to join our association that they would attend this annual meeting in order to satisfy themselves that the association was one of high standing and worthy of their consideration. I feel confident that the benefits to be derived from membership will be so strongly impressed upon them during this meeting that we will have the pleasure of welcoming them as members before this meeting is at an end.

As stated heretofore, I have had the pleasure of personal interviews during the past year with manufacturers in the different parts of the country and in the course of such conversations have been gratified to hear the majority of them approve of our organization and offer their assistance, and express the hope that we would continue the association on the same broad and conservative plan that we have adopted. I had the pleasure of assuring them that it was our object to confer with one another as to the best possible means of doing business in the various cities in

the most successful manner and to devise ways and means of working hand in hand with the manufacturers of the various products in our line, assuring them that if they would place their fullest confidence in the dealers belonging to this association, the results would be beneficial both to themselves, the National Builders' Supply Association, as an organization, and to the individual dealers as well. The feeling of goodfellowship and the mutual confidence of the manufacturer in the dealer and vice versa is what we are endeavoring to develop to such an extent that the manufacturer may feel and know that his confidence placed in the dealers belonging to this association will not be violated, and that we are constantly striving to derive for the various manufacturers whom we represent, the best possible good from the territory in which we labor.

On the other hand, and we are pleased to state the number of this class of manufacturers was extremely small, I found those who doubted whether an organization of this nature would be able to hold together. "Internal disagreements," they said, "would not permit us to continue on a friendly basis any length of time." I had the pleasure of dispelling this illusion from the minds of some of this class and believe that with very few exceptions; in fact, only such as are unwilling to be convinced, we will have the assistance of practically all the manufacturers in our line who have been approached on this subject. A few who held out said that ere long we would try to dictate to the manufacturer, and I informed them that this was not the object of the association nor was it its intention to in any way interfere with the business of the manufacturer, but try to promote the manufacturer's interest in the respective territories, thereby assisting the manufacturer as well as promoting our own interests. It is, therefore, of great importance that the close relationship between the dealer and manufacturer be not only advocated but fostered. The dealer, as well as the manufacturer, can derive great benefits from such an affiliation. It is a fact that no manufacturer can do so well in any given territory as the dealer who represents him and who is familiar with the business conditions and also the financial standing of practically every user of material in his territory. In order to retain this feeling of confidence and mutual satisfaction the dealer must treat with the manufacturer as though he were a part of his business. This mutual good feeling and understanding can then be carried out in its fullest sense and the benefits to be derived therefrom, while not always apparent on the surface, are manifold and lasting. The manufacturer, on the other hand, must respect the dealer's territory and we know if there is a mutual willingness to help each other there will be no difficulty experienced along this line. As an association we will continue to grow stronger only so long as selfish and personal motives are laid aside. We must work as a unit and adjust petty grievances which we may have between ourselves and the manufacturers without calling upon the association. If the grievance is such as can not be adjusted by arbitration or by personal understanding the association is here to give you such assistance as is possible without, of course, prejudicing the interests of the balance of its members. We believe that if the proper spirit will be shown at all times by our members in adjusting matters of this kind there will be very little need to call upon the executive committee or the officers of the association for adjustments. The fact that you are a member of The National Builders' Supply Association carries weight and also will be of great assistance to you in avoiding difficulties with the manufacturers, but on the other hand we would advise that at all times consideration of the association should prevent you from taking advantage of this fact, except where absolutely necessary, as the power given to you by being a member of this association should not be abused at any time or for the purposes of the association will soon be lost.

I would recommend that (in order to complete our organization to its fullest extent), the vice presidents of each State be called upon to look after the interests of the dealers in their respective States and also that they personally visit the dealers in the various cities who are not as yet members of our association but who are eligible, and endeavor to acquaint them with the object and purposes of our association and solicit their co-operation and ask them to become members. Further, I would recommend that each vice president act as an advisory to hear complaints of the dealers in his State and to adjust all differences if possible, and that in turn they report to the executive committee in a concise form the results of their investigations of complaints which they

were unable to adjust. This will minimize the labors of the executive committee and will greatly facilitate the adjustment of complaints and will result in harmony throughout.

I would also recommend that at some time during this convention the advisability of allowing local associations to join our association by having at least three of their members represent them at our meetings be discussed and action taken.

On my visits I found quite a number of such organizations which were really of benefit to the dealers in their respective places and a representation from these bodies would no doubt prove beneficial to all.

In company with W. S. Cobb, I recently made a trip to New England and other Eastern cities at the suggestion of the executive committee in the interest of this association and found such local associations among the dealers of New York, Boston and Philadelphia and, after conferring with the various members of the same, could not but be convinced that they were of great benefit to their members, as well as cultivating a feeling of goodfellowship and friendship, which is exceptionally helpful to all. I wish to take this opportunity of expressing my thanks to them for their exceptional kindness extended to Mr. Cobb and myself on the occasion of our visit, and I hope that their associations may continue prosperous for many years to come, and that others may have the pleasure of receiving the same hospitality which they extended to us.

I feel that if a time were set aside during this convention for the discussion of the various methods of handling warehouses, storing material, cost of teaming, uniform prices, cost of labor, etc., it would be profitable, as a mutual exchange of ideas will no doubt prove beneficial to all. We can make the benefits accrued from the member-



The sensation of the convention was the daily appearance of ROCK PRODUCTS. As soon as papers reached the hotel hot from the press there was a rush among the delegates to get copies. The first issue was practically exhausted two hours after its appearance. Nothing but praise was heard for the enterprise of the official organ of the association.

ship in our association greater than any one will believe by a mutual exchange of ideas as to the various methods of handling accounts as well as material. We can all learn one from the other and a mutual exchange as suggested will work a hardship upon no one and will be no doubt helpful to all.

The architecture of our modern cities is naturally constantly changing and we are pleased that our citizens have come to realize the importance of giving more attention to this part of the up-building of our cities, as they should be more than mere monuments of brick, stone, etc. Our public buildings should contain beauty as well as convenience and should be substantial and a credit to all who have been factors in the erection of the same. In this important matter the builders' supply dealer is an exceptionally important factor. By keeping abreast of the times and supplying the architects, engineers and contractors with the best and most modern materials obtainable, we can assist materially in making our various cities modern in their building operations, thereby beautifying the same and enabling monuments to be erected which will be a pride to all as well.

Naturally, the field that we, as building material dealers, have to work in along this line is limited by the number of practical articles which are brought forth, but by careful selection of the best and most useful wares and the proper presentation of the same before the public, we will not only materially increase our business, but at the

same time be of benefit to the community.

In conclusion, allow me to state that the unflinching courtesy and willingness to give suggestions and help, which I met with in the course of our work during the past year, make the usual conventional task of thanking those to whom I am indebted especially pleasant. To the executive committee, who have contributed their time and attention toward the successful handling of the various questions which have come up during the year, thanks are due, not only for the time and careful thought which they were of necessity obliged to give these matters, but also for their encouragement and careful advice which they gave.

More specifically, I wish to thank Messrs. C. W. S. Cobb, J. A. Davis and J. G. Lincoln, of Boston; Mr. Walter T. Bradley and Mr. Irwin, of Philadelphia; Mr. S. G. Lincoln, of Washington, and Mr. C. H. Classen, of Baltimore, who, through their valuable assistance and self-sacrificing efforts, made it possible for me to meet upon such a friendly plane the dealers in the various cities of the East, the members of this association for the confidence with which they have intrusted to me the office of president of this association for the past three years. I appreciate this honor more than words can express, and hope that the results of my efforts will at some time bear sufficient fruit to reward you for the confidence placed in me.

For your indulgent and patient attention accorded me during the delivery of this address, I heartily thank you.

Routine matters were discussed and it was a busy day, this Tuesday, following the first session of the convention.

The last thing accomplished at this session was the election of the president. Both Gordon Willis and C. W. S. Cobb, of St. Louis, were nominated for the highest office in the association, but each in turn declined the honor, and Gordon Willis, in his most inimical way, nominated for the presidency, John A. Kling, and he was elected unanimously.

Mr. Kling demurred as he felt that there was plenty of good men in the association to hold the office and urged that one of the two nominees, or a number of others he could mention, should take his turn in conducting the affairs of the association, they were satisfied that Mr. Kling was the right man in the right place, and for the fourth time re-elected him.

The meeting then adjourned.

Matters Before the Executive Committee.

Invitations had been received for the next meeting of the association, from Boston, Philadelphia, Cincinnati and Milwaukee, and this matter was placed in the hands of the executive committee for action, as was also the question as to whether or not a summer meeting should be held.

The power of the vice presidents was enlarged by authorizing them to carry out the directions of the executive committee on arbitration matters, and to make special effort to not only improve the work of the association but to increase its membership.

WEDNESDAY MORNING'S SESSION.

Wednesday was a great day. At 9:30 all the manufacturers and dealers, numbering something like 300, gathered in the palm room to listen to an address by President Kling.

PRESIDENT'S ADDRESS

About one year ago The National Builders' Supply Association conceived the idea of inviting the manufacturers to attend their meeting and amended their constitution to permit of their becoming honorary members, hoping the results would be beneficial to both. I am pleased to state that many of the manufacturers who had previously expressed their belief that we would not exist long, as an organization, are to-day working in perfect accord with us, and are endeavoring to cultivate and promote a better feeling and understanding with one another.

As stated by the Hon. Herbert T. Bissell in his address of welcome at the Buffalo convention, "The interests of the manufacturer and the dealer are inseparable, the legitimate dealer being the only proper channel through which the manufacturer should distribute his product, while the dealer, on the other hand, should do everything in his power to co-operate fairly with the manufacturer." It is also true that a separation one from the other will prove disastrous in most every instance. It should be the object of both manufacturer and dealer to work harmoniously together and endeavor to correct the wrongs and abuses which have resulted from each pursuing his own

course without considering the other. It is a pleasure to do business when there is a reciprocal friendly spirit shown and we believe that the manufacturer will gradually become reconciled to the fact that the dealer is his best and most profitable distributor.

One of the largest manufacturers of material in our line adopted the policy some years ago of disposing of his product through dealers only, with the result that they have not only been compelled to increase their capacity, but during times of depression have had the satisfaction of keeping up regular shipments, while it was worrying others, whose facilities for manufacturing were equally as good, to keep part of their plants in operation, thus proving that the harmonious feeling existing brought forth an expression of confidence and appreciation from the dealer.

I sincerely hope that the National Builders' Supply Association will continue on the broad plan which we have outlined and thus justify your support.

The past year has developed a number of embarrassing questions in the material market, upon which we look with feelings of regret. The principal embarrassment was a demoralized market, especially in the cement line. In my opinion there is no more forcible argument possible for the need of a strong association among the cement manufacturers than the lessons learned as a result of last year's market conditions. I feel that if the cement manufacturers had more confidence in one another and would complete a thorough organization they could accomplish what both they themselves and the dealers are striving for. They could then establish a price for their product which would permit both to live and at the same time practically regulate the production. An example of what can be done in this line, and which has been demonstrated to be a great benefit both to the manufacturers and the dealers, and I hope will continue, is the lime, plaster, plumbers' supplies and sewer pipe manufacturers' associations. The members of these organizations are scattered over as much, if not more, territory, have as many difficulties and petty jealousies to contend with, require much less capital to manufacture their product, and are open to more competition than is the case in the cement line. If men in these lines of business can work harmoniously and profitably together, why should not men who are capable of conducting individual businesses of larger capital find some equitable basis upon which to work harmoniously? I believe the need of the day is a leader, an organizer in the true sense of the word. Not a Wall Street broker, but a man who is heart and soul in the business and has practical experience in the same, and understands its needs thoroughly. An association based upon an equitable plane with the policy of live and let live and a proper protection for the dealer, would be a profitable one, and would do away with the extreme and senseless market fluctuations which we now have. I assure you the dealer is heartily in accord with living prices on any material, and we hope that we will not again see such a variation in the market as was experienced in the years of 1903 and 1904. When the business is profitable to the manufacturer, it is likewise to the dealer, but on an unstable market such as the one just experienced, the margins are cut to such an extent that there is no profit for either.

When, therefore, we say we wish you abundant success during the year 1905, you can feel assured that there is back of this expression the desire to see this success assured to the fullest extent, knowing that the benefits to be derived will be mutual.

Realizing that you would prefer to hear speakers of ability, I will thank you.

President Kling further introduced Mr. Chas. A. Matcham, of the Lehigh Portland Cement Co., Allentown, Pa., to talk on Concrete Construction. He said:

President Kling introduces Mr. Matcham.

I am sure it will be a pleasure to those who attended our last annual meeting and heard the able discourse on cement given by a gentleman who has had as much practical experience in the up-building of the cement industry as any other individual in this country, to know that he has consented to give us another address, on Concrete Construction.

It is a pleasant task to introduce Mr. Charles A. Matcham.

Mr. Matcham made a very exhaustive talk on the subject, illustrating with pictures one of the most interesting and valuable papers ever delivered on the subject, which will appear in March issue of Rock Products. (Editor's Note:—The omission

of this paper from this issue of Rock Products is due to the large amount of concrete matter already printed. Every reader should look with interest for this paper in the March number.)

Mr. Kling introduces Mr. McClave.

Some of our members do not handle sewer pipe, others present never saw a piece of this material, nevertheless I feel that a little talk by one who hardly hears anything else and who is competent and an authority on sewer pipe, from the mining of the clay to the collection of accounts, will be interesting.

I am therefore pleased to introduce Mr. James H. McClave.

SEWER PIPE.

BY J. M. McCLAVE.

Mr. President and Gentlemen—It gives me great pleasure to be accorded the privilege of meeting so many dealers in builders supplies from different parts of the country here to-day.

I take it that you expect to hear something concerning salt glazed pipe made from clay, as the term "sewer pipe" as we have come it, applies to that particular branch of the pipe business.

The first thing necessary to make good "sewer pipe" is a clay that will vitrify at a heat sufficiently great to fuse it, so that the fumes from the salt, coming in contact with the fused mass, will form the glaze on the pipe.

This process renders the pipe not only impervious, but tough and strong as well.

Clay in this condition is as nearly indestructible as anything known to man.

Small bits of pottery, made in the earliest times of prehistoric man, come down to us unaltered by centuries of exposure.

There are no definite records as to when clay pipe was first made and used. It was used in England and Scotland in the Eighteenth Century; and for the first fifty to seventy-five years of our national existence any pipe used in this country came from the above named countries.

The method of manufacturing was the potters' wheel, and a few feet constituted a day's work. A fusible material, known as "slip," was used for a glaze.

Pipe for draining purposes was made in New York and New Jersey prior to the middle of the last century. The exact date and by whom could not be obtained.

The rapid development of the "sewer pipe" business, like many other great industries, was left for the last half of the Nineteenth Century; and for the great region west of the Allegheny mountains, and particularly our own State of Ohio.

The first to manufacture "sewer pipe" in the region just named was the late Mr. David E. Hill, of Akron, Ohio.

In 1849 the firm of Hill, Foster & Co. converted the famous old "Black Mill" at Middlebury, now East Akron, Ohio, into a pottery.

The firm engaged in the manufacture of hexagonal water pipe. These were made in a mold, the orifice being bored out by a machine adapted to that purpose.

Mr. Hill in his travels became acquainted with the use and need of "sewer pipe," and in it great possibilities for the future, set about to find a cheap material to make it from, as the clay they were using was too expensive.

Late in the summer of 1850 Mr. Hill was walking across a field where a farmer was plowing, to the north of what is now East Exchange Street, Akron, Ohio, when he observed the clay-like appearance of the soil as it was turned up by the plowshare. Taking a lump of this clay to the factory with him, he had it tested, and found it to be just what he wanted. The farm was purchased, a clay pit was opened and the first Akron shale pipe was made in the spring of 1851.

In 1853 George Carlyle and John McFadden, two Scotchmen, potters by trade, were making chimney tops at Anderson, Va., crossed the Ohio river to Newburgh, now Toronto, Ohio, fitted up a small factory and began to make "sewer pipe" from Ohio river fire clay, which had been used by the Freemans, Porters and others since 1830 for making fire brick. They used the potter's wheel and the mold for making their pipe.

About this time a party in New York had brought to this country from England a machine to make pipe, but it would not work. Mr. Hill hearing of this machine, made a trip to New York, and by bribing the watchman, succeeded in getting into the factory and examined the machine. With the knowledge thus obtained and the assistance of C. J. Merrill, they produced the first workable machine for the manufacture of pipe.

The kilns at the Akron factory consisted of two up-draft square kilns, and at the Ohio river factory there was one kiln.

The clay, from which the pipe was made, was taken from the pit or mine and allowed to lay in the open air for several months before it was used. It was then put in what was known as the Chaser Mill, where water was added and the clay was ground until it was pulverized and thoroughly mixed.

The first machine used only made ring or band pipe, the sockets or bowls were made by hand and stuck on.

Two or three years after the Ohio river factory was started James Edwards, of Charleston, Mass., made some pipe on the potter's wheel.

In the early sixties the Salamander Works and Bowman & Sacket, of New Jersey, began to make some pipe. About the same time H. M. Thompson & Co. and Evans & Howard Fire Brick Co., of St. Louis, started in the pipe business. In the vicinity of Baltimore Lintow & Rittenhouse went into the business in 1865. They were followed the next year by Henry Gibson, and in 1868 the Baltimore Retort and Fire Brick Co. added the making of "sewer pipe" to their business. In 1867 some pipe was made at Jackson, Mich. The Baltimore and Boston concerns and H. M. Thompson & Co. have been out of business for a number of years.

The Freeman Fire Clay Co. began to make pipe at Freeman, Ohio, in 1869.

In 1868 Mr. Hill and Ozias Barber invented the first steam press ever used to make pipe.

This was a great step in advance of anything that had been produced to cheapen the cost of pipe, and the next ten or twelve years saw wonderful advancement in the pipe business.

Those already in the business hastened to put in the improved machinery, and new factories began to spring up in different parts of the country.

Dr. W. H. Garlick and H. D. Sizer, of Cleveland, Ohio, established the Calumet Fire Clay Co., at Elliottsville, Ohio, in 1870. J. A. Baldwin and others of Akron, Ohio, organized the Buckeye Sewer Pipe Co. in 1872, the same year J. Lynch, a Congressman from Maine, established a works near Washington, D. C.

The Portland Stone Ware Co., Portland, Maine, was making pipe at this time, and also the N. U. Walker Clay Co., at Wellsville, Ohio.

George Goodrich fitted up a factory in Boston in 1874, and John Francy, a pioneer brick manufacturer on the Ohio river, established the Forest City Clay Works, at Toronto, Ohio, the same year.

Blackmore and Post began business about this time, and in 1875, Gladding & McBeane Co. made pipe for the first time at San Francisco, California. In 1879 Robinson Bros. & Co., began to make pipe at Akron, and T. M. Daniels and R. M. Francy established the Great Western Fire Clay Co., at Toronto, Ohio. During the same year a factory was started at Rochester, New York.

In the past twenty-five years factories have been established in different parts of the country until to-day there are a hundred or more with a daily capacity of nearly a 1,000 carloads.

The improvements in the appliances for making "sewer pipe" since the invention of the steam press are not very numerous. The press and valves have been enlarged, the dies for making the pipe have been strengthened and improved. The Chaser Mill has been replaced with the modern dry pan and screen for pulverizing and screening the clay, and the wet pan for mixing the clay to be made into pipe.

The interlocking former for making the bowl or socket of the pipe before it leaves the press has lessened this part of the work.

A power conveyor for feeding the press has taken the place of the man with his shovel. And the large round down-draft kiln has taken the place of the small square up-draft.

The greatest advancement, however, has been in the workmen who operate the machinery and handle the pipe. This may be more readily understood by a comparison of the output of a press thirty years ago and that of to-day; then 600 to 800 feet of 12-inch pipe was considered a good day's work. To-day if a press does not turn out from 3,000 to 4,000 feet of 12-inch in ten hours an investigation will be made at once.

The same proportion of increase will apply to the kiln capacity.

Not only have factories and production increased but the size of the pipe has increased as well.

Fifty years ago the largest pipe made was 16-inch, with a shell one and one-eighth inches thick, to-day we have our thirty and thirty-six-inch with a shell from two to three inches thick.

The increase in the carrying capacity is something remarkable. A 15-inch pipe, having a fall of three inches to the hundred feet, will discharge 1,400 gallons of water per minute, while a thirty-six-inch laid in the same manner will discharge 15,000 gallons in the same time.

There is no line of manufacturing where more risk is taken than in clay materials and particularly "sewer pipe."

The last process is the burning; in other words, after we have practically put all the cost on we consign the results of our labors to the flames, hoping to have them returned to us in a finished product that will repay us for our efforts. A few shovels of coal may destroy a whole kiln of ware and all hope of gain is wiped out.

Sewer pipe is used for drains such as sanitary sewers, storm sewers, house drains, water conduits and acid conveyors.

For sanitary purposes there is nothing made to equal it, acid has no effect upon it, and when properly made it can not be destroyed by the soil and acids passing through it.

The use of "sewer pipe" for water conduits has passed the experimental stage and its use for this purpose will have a more rapid growth in the future.

The cities of Amsterdam, N. Y., and Hartford, Conn., have been using "sewer pipe" water conduits for several years, with the best of results. Findlay, Ohio, is completing a 24-inch line ten miles in length.

Fifty years ago there was not a sewer system in all the vast domain of the then Western States.

The pioneer manufacturers, not only found the clay, devised the machinery and worked out the process of manufacturing, but they had to create a market for their product. We can readily understand that this was no small task, for in this day of modern improvements and conveniences great industrial and commercial cities, such as Baltimore and New Orleans, are yet without a sewer system. Railroads for travel and transportation were not in general use.

The introduction of "sewer pipe," like any new commodity, was a process of education. The merits of clay pipe must be made known, not through great trade journals such as we have to-day, but cities and towns must be visited personally, wildernesses and thinly settled districts must be traversed, rivers and streams without ferry boats or bridges must be crossed; the cross road tavern or farm house was the lodging place and hog and hominy, corn bread and rye coffee were a portion of the diet of our pioneer salesmen.

The earnest and persistent work soon began to tell, the use of foreign pipe gradually diminished, the cities along the Atlantic coast used the pipe produced at New York, New Jersey, Boston, Portland and Baltimore.

In the early sixties New York began to use what was then called Western pipe, but not until in the seventies did New England begin to look to the West for pipe. In the spring of 1875 Mr. Arthur Staples, of Staples Bros., Lowell, Mass., came to Ohio, secured a sample of Akron pipe and was made a price of 5 per cent off the list f. o. b. Lowell. Returning home with this sample, he secured an order for thirty carloads, from the city of Lowell, at 10 per cent. above the list delivered on the trench. The rate of freight was 78 cents per 100 pounds.

These prices seem very high when compared with those of the present, but were considered, at that time, very reasonable, and is certainly an object lesson to us, that prices can be maintained, which will give to the manufacturer and jobber a reasonable profit without oppressing any one.

The question is often asked, "Does the supply exceed the demand?" Yes. If all the factories east of the west line of the State of Indiana were operated to their full capacity, the amount used would be less than 50 per cent. of the production in that district. I am not conversant with the proportion of the supply and demand of other districts, except Southern California, where there are three factories, operated by the Los Angeles Sewer Pipe Association, whose manager writes that any one of them could supply the entire trade.

At the present time, nor for more than twenty years, has there been any pipe imported, on the other hand some pipe is being exported.

The manufacturers on the Pacific coast ship to Manila, Honolulu, British Columbia and Central America, and the eastern factories ship some to Cuba, Mexico and Central and South America.

I have endeavored to give you a brief history of "sewer pipe," but before closing, permit me to say a few words on that part of the business in

which both dealer and manufacturer have a mutual interest.

I scarcely need to say that I refer to the matter of profits.

Under present conditions we must co-operate with each other if we expect to maintain prices on a profitable basis.

The matter of trade agreements is not new, as early as 1840 the stoneware people formed an association to protect themselves and the trade.

Only as trade agreements have been maintained, has there been any profit in the manufacturing and selling of "sewer pipe."

If you do not have an association of some kind in your own city, can not something be done to bring that about?

I can cite you no better example of this than the city of Boston and vicinity, where the jobbers have had an arrangement for years, which has always enabled them to secure a profit from their business.

Again, permit me to say a few words in regard to the most objectionable factor in our business. I scarcely need to say that I refer to "sewer pipe" seconds. This is the rock upon which more profits have been wasted, more agreements broken and more associations wrecked, than anything else in our business.

There is no uniform standard for this grade, and no rule has been established by which it can be definitely known.

Can not this association assist the manufacturer in establishing a standard for this grade of pipe.

In conclusion, Mr. President, allow me to congratulate you, your fellow officers, and the members of this association over the rapid growth and good and effective work you have accomplished in the different channels of the builders' supply trade.

The meeting then adjourned to attend a reception in honor of the delegates and visitors, given at the Builders' Exchange. This was a very enjoyable affair at which a full delegation was present. Mr. McAllister and Secretary Edward H. Roberts each welcomed the visitors and members of the association with a few words. After looking over the beautiful Exchange Building, the party adjourned to the entrance of the Chamber of Commerce and had their pictures taken as noted on this page.

WEDNESDAY AFTERNOON.

It was after 2 o'clock when this session of the convention was called to order and President Kling introduced Mr. W. F. Saunders, secretary of the Business Men's League, of St. Louis, Mo., who spoke on the subject, "The Business Man."

Mr. Kling introduces Mr. Saunders

I have the pleasure of introducing to you a gentleman of high standing in his community, one who has been greatly honored in his home city. To have such honors bestowed upon one speaks volumes for the ability and character of the man and I am confident that we all will derive benefit from the address which shall now be given us by Mr. Wm. F. Saunders.

THE BUSINESS MAN.

BY WM. F. SAUNDERS.

A discussion of the usefulness and of the effect of the association of business men is not only interesting from a historical standpoint, but most opportune at this time when we are realizing that commercialism is controlling the affairs of every country in the world and directing its policies.

It is moreover most gratifying to me to speak of the subject to the members of this organization which seems to me upon study of its laws and methods approaches very near to the ideal organization that has good commercial objects and really achieves them, which stands for fair dealing, a harmonious relation between its members and co-operation with organizations of kindred business men.

The understanding that the association of individuals, having the same object, into a body operating as one, things for the benefit of all might be accomplished that were impossible to the individual, seems to have been with mankind the result of experience, probably accidentally gained. We know that the cave dwelling men, our ancestors, did not organize, but lived their lives, a family alone, or two or three families together, for centuries. When they learned to organize they were

cave dwellers no longer. They enlarged their knowledge by exchanging experiences and together built houses and went on towards a higher civilization.

The Phoenicians, the first merchants who have left us history, gave to Great Britain and Rome their commercialism, and part of this commercial principle was that organization was necessary to success. Crude as the Phoenician commercial organization was, it had all in it that was necessary and it gave the idea to the world, so that it lived and was improved on, till in the middle ages the trade guilds of Europe and of England were more powerful often than the crown itself. These guilds were all local and had no central national organization, nor does it appear that they subdivided their work by committees. When some national matter affecting business seemed to demand action a consensus of opinion was got by emissaries traveling about the country from one guild to the other, the older and more influential guild initiating the movement. When the United States was colonized first there came merchants, of course, but they had no guilds and conducted their business as individuals. For many years there was no business organization in any of the towns. The first one was established by the merchants of New York in 1768, and it is well to note that it was not created because the merchants wanted to have a business organization, but because they wanted to accomplish something for the good of their business which they were certain they could not get without this organization. At that time Philadelphia, Boston, Norfolk and New York were competitors for both trade and immigration. New York was not sure of leadership and its merchants felt no confidence in the situation. The merchants of none of these towns were organized. The business men of New York met, organized a chamber of commerce, got their charter from King George the Third, and thereafter worked together and promoted the general interests of the city in every possible way. In twenty years the work of this organization, securing trade and population, put New York out of reach forever of its competitors, and although within that twenty years the merchants of Boston and Philadelphia, seeing the good results of the New York organization, themselves organized, it was too late to compete with New York. Other cities organized associations as their business grew out of the hands of the first traders and ship owners to the point where the necessity for the adoption of business regulations began to be apparent. At the time of the civil war the commercial organizations of the country were an enormous factor in focusing, defining and expressing public opinion. As the commerce of the country has grown since the civil war there has been a prodigious increase in the number of these commercial organizations. There are now 966 in the United States whose work could be truly described by that Charter of George the Third, issued to the New York Chamber of Commerce, the promotion of just and lawful commerce by all just and lawful means. As commercial questions have grown more complex, as the detail of their management by the Chambers of Commerce became too much for them to handle thoroughly; as they began to specialize themselves on the lines of speculative trade, most of these organizations have surrendered many of their duties to other organizations and have so narrowed their own work as to lose considerably their former prestige as a general city influence, although gaining largely at the same time in usefulness by the specialization. A few like the Cleveland Board of Trade have not become apathetic, but still do all the general city work through very active committees. In New York City now, there are besides the old Chamber of Commerce, nine other organizations doing the work that used to be done alone by the Chamber of Commerce. In Philadelphia there are five altogether, and in Boston five. In Chicago there are five of this kind of organization; in St. Louis four. There are other reasons, too, why these newer commercial organizations offshoot from the parent. As the older organizations the Board of Trade, Chamber of Commerce and Merchants' Exchanges grow in wealth and in membership they become conservative to a point where their striking force is very weak, and many members become much dissatisfied with methods which seemed to them too conservative and lacking in adaptability to new trade conditions, so they organize into a new Business Men's League, club or association, which worked fast and struck hard. In the newer towns, and especially so in the West, the Business Men's Associations have been organized directly. Often they are organized when the town is established, as a necessary adjunct like water works or

a postoffice; sometimes the town is without one until something occurs which shows the necessity of the organization of business men. I recollect once, in a frontier town five years old where we had no organization, that a man came to the place one day and opened an office and sent out letters to about 500 of the 8,000 people, telling them that he had bought an old land grant which included the ground on which stood their homes and their shops and their warehouses; and that he would move in the courts to eject them if his claim was not satisfied by the payment of money within thirty days. Here was a matter that unsettled business and land titles and had to be grasped vigorously at once. A town meeting was called, a Board of Trade organized, many subscribed for its maintenance, officers elected and directed to take steps to quiet the titles without delay. This was done without legal proceeding and so without the publicity that would have made land investors distrustful. The Board of Trade found other things necessary to do before this land matter was disposed of, struck deep root and is doing good work to-day.

The wide range of subjects upon which these organizations work, investigating, deducing conclusions, generalizing practically from masses of special cases, is shown quickest by the committees which I have chosen from the list of 100 organizations in the large cities and the newer small towns. One may tell something about the size of the town from the name of the committee.

Committees of the Old organizations: Executive, Finance, Arbitration, Statistics, Public Affairs, Contracts, Market Reports, Grain, Flour, Provisions, Foreign Trade, Real Estate, Legislation, Immigration.

Committees of the new organizations not in the older ones: City Development, Public Improvements, Postal, Educational, Public Health, River Improvement, Trade Extension, Roads and Bridges, Transportation, Commerce and Manufacturing, Legislation, Immigration, Agricultural, Entertainment, Conventions, Real Estate, Taxation, Press and Publicity, Irrigation, Insurance.

Another result also came as business men saw the good that was being accomplished for the business interests of a city in general by its commercial organization. The men concerned with a special business in a city organized for their own purposes and took care of their own interests. This organization not only strengthens its own business by securing from its members agreement of opinion and united action on matters of common concern in the regulation of their own trade, but it secured recognition for that particular business interest from the people of the community and from local, state and national legislatures, a thing which has always been most important. As cities have grown, as business has become more intricate and so more subdivided, these local business organizations have increased and the national idea has appeared. With some branches of business this national character has been given to an organization by uniting local organizations through a national board with representation from the organization of each city. This method makes a very strong organization if each local body is well represented on the national board, and if the national board is careful in its work to keep closely in touch with the local associations, but there is great danger of the national organization not doing this and then we have a big incoherent, unimportant body. A national organization like the National Builders' Supply Association, whose members meet face to face and keep in complete understanding with each other, ought to be always an organization most influential and profitable to its members. At present there are in the United States 11,200 of specialized business associations. New York has 205 of them, Philadelphia 80, Boston 97, Chicago 108, St. Louis 92, and Cleveland 23. Of course I do not count in this employers' organizations nor trade unions. There are 164 of the national organizations concerned with a special business, some of them independent of local associations, like this one, and some being a central national body.

All of these special business organizations work with very few committees, some of them with none. In this respect you will see that the special organizations differ widely from the general business organizations. As the work of any organization increases there must be committees. The ideal organization of course is one in which all the work is done by the president and secretary, or by a small executive committee, for the reason that it is then done more quickly and effectively. Any organization must add committees as the need for work along special lines appears. The smaller

these committees are, the better. I agree with the remark of Mr. Spurgeon that the ideal committee is a committee of three, with one member sick and the other out of town all the time. I dare say there are successful business organizations whose secretary works for the love of it, in fact I know one or two myself, but I believe that a very well paid secretary giving his whole time to the work of his organization more than doubles its efficiency. The reason is obvious. The paid secretary makes the improvement of the organization his own business, thinks of it all the time, and plans for the interests of all its members. He can not do this if his chief concern is with another business by which he makes his living. The best he can do in that case is to give to the organization all of the time and energy he has left from his own business, and although he often sacrifices his own interests to that of the organization, he can not possibly do the things he would do had he a single purpose. The usefulness to the country and to their local community, and the influence of the general and specialized business organizations has become so great that the government is now paying close attention to them. The Department of Commerce and Labor frequently appeals to them for opinion and report, and the congressman or the state legislator, or the municipal assemblyman is a novice who would not treat with much seriousness a request signed by the president and secretary of any organization in his district. To the members the usefulness of these organizations is more direct, although a business man often is entirely ignorant of the loss he has suffered by not being a member until he joins one.

During the last twenty years the work of the commercial organizations has become well defined and thorough.

First—They organize and systematize commercial experiences, reduce to uniformity the variety of business practices, apply accepted principles of trade to local conditions, and collect statistics, helpful to their members.

Second—They promote or prevent legislation.

Their influence in this respect was never so well shown as it is being shown now in the matter of the pending freight rate legislation, the most important commercial question, not excepting even the tariff, that has ever been before Congress. Were all the business organizations in the country agreed on this question Congress would undoubtedly dispose of this subject at the present session, but these organizations differ widely, and influencing the House and Senate as they are doing there will be no bill passed at the present session. The New York Board of Trade has declared itself positively against the proposition to enlarge the present powers of the Interstate Commerce Commission. The Chicago Board of Trade, the Chicago Shippers' Association and the Illinois Manufacturers' Association, acting together, have declared themselves with equal positiveness for an enlargement of the powers of the Interstate Commerce Commission. The Commercial clubs of Kansas City and St. Joseph, both composed of shippers, are against the enlargement.

The St. Louis Business Men's League, the strongest and most representative business organization of the city, has notified Mr. Hepburn, the chairman of the House Committee on Interstate and Foreign Commerce, that it wishes to be heard on the subject before the committee makes a report, thereby indicating that it is not wholly satisfied with any of the pending bills.

Third—They mould public opinion on economic questions.

Fourth—They influence municipal policy in behalf of better government, and generally develop the associative efficiency of citizenship.

Fifth—And I believe this is the way in which they most directly benefit their numbers. They unite the effort of business men who are trying to do the same thing in different ways and prevent the waste of individual force which results from friction and continuing disagreement in business. And in these days of little leisure we all know that wasting force and effort in business means wasting money.

Quite lately there has been a striking example of the loss to a special business by lack of organization. There was in our State, Missouri, five years ago, a flourishing manufacturing business which supported several factories and was growing fast. The owners of the business were not organized and had never felt any necessity of organizing. Their business competed sharply with another which was organized to the highest degree of efficiency. Between the two there was no friendliness. The organized business during a

session of the legislature had a skillfully disguised bill introduced which absolutely prohibited the conduct of the other business. The bill was passed and the manufacturers who were hurt did not find out that such a law had been made until three days before it went into effect, nearly three months after the bill had become a law. Then they organized but it was too late. They had to move their factories from Missouri and have lost much money and time since the bill was passed in trying to repeal it. The bill will be repealed at this session of the legislature probably. If these manufacturers had had an organization six years ago, the bill never would have been passed, and their industry would have been very much greater and more profitable to each manufacturer than it is now.

In Great Britain, Germany and France, general and special business organizations have grown from the guilds directly, and in France they are regarded as so important to the government that they are regulated directly by law. France in 1903 had 2,757 organizations, Germany fewer, and Great Britain several hundred more. In neither country, you see, does the number approach the number of those in the United States, nor are they as a rule so effective in their work.

Mr. Chairman, at the beginning of this talk I alluded to the fact that commercialism is controlling the policies of government in all the world. Some people flinch from the recognition of this. Some admit it and lament it. This feeling arises from a misunderstanding of commercialism. Commercialism is the methods and the practices of commerce, the application to everything of accepted business principles, and these accepted business principles which have come down to us from the first Phœnician traders are honest dealing and industry. There is every reason why these principles should control the policies of nations. Those who decry commercialism, who sneer at trade and barter, who speak contemptuously of all business, do so because they conceive sordidness and selfishness and dishonesty to be necessary attributes of commercialism and because they think these things are developed by it, but history does not bear out this theory. There is sordidness and selfishness and dishonesty in business, but there is sordidness and selfishness and dishonesty in every occupation, and there will be sordidness and selfishness and dishonesty until men become perfect. The primitive man was all sordidness and selfishness and dishonesty, but as commercialism has advanced mean and evil things have been disappearing. The nations have grown to better things as their commerce has developed. On commerce civilization has always depended, and with commerce the intellectual development of man began. With the widening of commercial relations have come the arts, the sciences, the comfort, the education, the happiness of mankind. Upon the harmonies of commerce, as the Emperor William of Germany said lately, that is the maintenance of reasonable and fair commercial relations between the people of one country and the peoples of different countries, will in the future depend the prosperity and peace of the world. In this country these harmonies of commerce will be made by the business associations, general and special. Without them there would be discord, disagreement, and the loss of commercial power and prestige to the United States.

Mr. W. G. Hollis addressed the convention on "Reciprocity," and gave a very concise and interesting story of how, by co-operation, the associations could bring about improved conditions, where, as individual members or associations, it would be hard to do as well.

He spoke of the work done in the lumber trade during the past fifteen years and the present accomplishment of unheard of things, also the interesting plans of this association to insure the integrity of their slogan, "We Sell to Dealers Only."

An article written by Mr. Robert W. Lesley, Am. Soc. C. E., Philadelphia (a well known cement authority), was read by Mr. Gordon Willis, St. Louis. This paper proved to be a most interesting account of how the uniform specifications for cement were gotten out and finally adopted as a standard by the American Society for Testing Materials. The importance of the adoption of the specifications and their general value to the cement industry and to the trade at large seemed to be thoroughly appreciated by the members of the association.

From all sides were heard expressions to this effect, and all hands were most anxious to obtain copies of the Standard Cement specifications which

were supplied through the courtesy of Mr. C. M. Camm, of the Lesley & Trinkle Co., Philadelphia, Pennsylvania.

Mr. Kling Introduces Mr. Johnson.

Some years ago the city of Cleveland lost one of its valuable citizens, a banker (not of the bursting or Chadwickized kind, for which our city is renowned), but a whole-souled, big-hearted fellow, who, after a few weeks of schooling, came back, (as all Clevelanders do), a full fledged cement autocrat, using his eloquence in introducing an Ohio product that would answer any purposes and would beat any other cement in the world. On the quiet, he has told this story so often that he now actually swears it is the truth. As a salesman he is a success, and I am pleased to say he wishes to tell you how he does it.

It affords me great pleasure to introduce Mr. Charles L. Johnson.

Mr. C. L. Johnson's interesting paper, "Salesmanship," will appear in the March issue of Rock Products.

Mr. Kling Introduces Mr. Martin.

We all pride ourselves on the fact that we know more or less about lime but I am confident that we can all derive benefit from listening to a discourse from an authority so great as the backbone of the Lime Manufacturers' Association, Mr. Peter Martin.

The excellent paper on "Common Lime; Its Uses and Abuses," by Mr. Peter Martin, will appear in the March issue of Rock Products.

Mr. Kling Introduces Mr. Roe.

While I know a little as regards cement and sewer pipe I am free to confess that I know nothing of roofing and floor tile, but feel confident that our worthy secretary has secured an able man to tell us something in regard to this material that will be interesting.

I take pleasure in introducing Mr. Chas. Roe.

CEMENT ROOFING AND FLOOR TILES.

BY H. J. FURMAN.

Mr. President and Gentlemen—I have the honor and pleasure to address you as representative of the Furman Construction Co., of Detroit, Mich., on the subject of "Cement Roofing and Floor Tiles." As the time allowed us is limited, I will endeavor to be as brief as the subject will permit.

Cement as a roofing material is not a new wrinkle by any means, as according to reliable statistics the first cement roofing tiles were made at Staudach, Bavaria, Germany, in 1840. The material used was natural cement earth which was by far inferior to our Portland cement of today. Nevertheless in 1879 at the International Exposition at Arnheim, Germany, some of these tiles were on exhibit which had been on the roof for thirty-five years, not only showed no signs of wear, but proved even better and stronger than any newly made tiles of Portland cement.

The construction of these first tiles was crude and simple, no locking or fastening device, just a hook to hang them and cement to join them. A number of such roofs can still be found in Bavaria.

In 1876 the first single-lock tile was patented and was awarded the Gold Medal at the Paris World's Exposition in 1878. Since then cement roofing has been used successfully in Germany, France and Belgium, where it ranks high on the market, and in some parts is used exclusively. Germany alone supports 267 cement roofing tile plants and their number is still growing from year to year.

Our New Era cement roofing tiles, patented in the United States and Canada, have the advantage of a double lock and fastening device which render them absolutely tight against drifting snow, rain or dust and safe against storms and blizzards. The material, as you all know, will last forever, improving with age, thus making it the only real fireproof and everlasting roofing material on the market, which can be produced at as low a cost as high grade wooden shingles. One marked feature of our New Era cement roofing tiles is their lightness, weighing about 250 pounds less to the square than the German tiles, therefore, adapted to almost any structure.

The Detroit Cement Tile Co., operating since June of last year, has covered about eighty roofs in Detroit, a number of them on light frame houses, some of them having 2x4 rafters. Still they have stood the severe storms of this winter splendidly, and the company expects a rushing business the coming season.

The manufacture of our tiles is simple and inexpensive. It does not require a large factory building or high priced steam plant. A large, one-story shed with a simple heating apparatus for the winter is all that's necessary. The work is all hand power, and a common laborer will become an expert tile maker in time of one or two weeks. Let me explain the process of making our tiles.

The material is mixed two parts of sharp, clean river or bank sand to one part of Portland cement. The steel plate is placed in the tile press, filled with the mixture, tamped, rubbed, colored, glazed and the lock put on, lifted out and placed on a rack. All these operations take an experienced tile maker one minute and thirty seconds, enabling them to make from 250 to 275 tiles per day without any great effort. The new tiles remain on the steel plates and on the racks from twenty-four to forty-eight hours, according to the temperature in the shop. Then they are piled away and watered three times a day for at least four days, after which time they are left to nature for seasoning. In thirty days they are fit to be put on the roof, and will gain strength from day to day and year to year. Our tiles can be made in any desirable color and they are guaranteed to stand forever, if the right non-fading cement colors are used.

Cement floor tiles have been used in Europe about as long as roofing tiles, and have now reached the stage of highest perfection. The material used is one part of cement and three parts of fine, clean sand. The coloring is perfect when German or French colors are used; the design most distinct, artistic and ornamental. They are more handsome, more substantial, more easily laid, adhere better to the concrete foundation, never showing any wear and tear as the burnt and vitrified clay tiles, still they are less expensive and will find a ready market if properly made.

Cement floor tiles are made under high pressure, up to 40,000 pounds per square inch, in either hand or power presses with capacity of from 1,000 to 2,500 tiles per day, requiring three men to operate.

Wooden floors as well as wooden roofs will soon be a thing of the past in this era of fireproof building, and cement floor and roof tiling, properly introduced opens up a great and profitable industry for enterprising manufacturers.

Thanking you, Mr. Chairman, President and Gentlemen, for your kind attention, I shall be pleased to be called upon to answer all detail questions in regard to cement roof and floor tiling.

The meeting then went into executive session and proceeded to elect the following officers:

John A. Kling, president; members of the executive committee for two years, **William Irvine**, Philadelphia, Pa.; **Richard Kind**, Toledo, O.; **F. S. Wright**, Chicago, Ill. Members of executive committee for one year, **Chas. H. Claessen**, Baltimore, Md., treasurer; **J. N. Thayer**, Erie, Pa.; **Chas. Weiler**, Milwaukee, Wis.; **C. S. W. Cobb**, St. Louis, Mo.

Vice presidents for the different states are: **H. C. Godfrey**, Bridgeport, Ct.; **Chas. Warner**, Wilmington, Del.; **E. M. Baltes**, Ft. Wayne, Ind.; **C. J. Parke**, Decatur, Ill.; **C. O. Perkins**, Des Moines, Ia.; **Owen Tyler**, Louisville, Ky.; **A. G. Lincoln**, Boston, Mass.; **E. E. Evans**, Bay City, Mich.; **C. P. Cockey**, Minneapolis, Minn.; **Gordon Willis**, St. Louis, Mo.; **H. P. Cook**, Newark, N. J.; **M. A. Reebe**, Buffalo, N. Y.; **J. W. Eichelberger**, Dayton, O.; **J. J. Haas**, Pittsburg, Pa.; **James G. Goff**, Providence, R. I.; **B. W. Marshall**, Wheeling, W. Va.; **C. P. Flatley**, Green Bay, Wis.; **J. O. Waters**, Washington, D. C.

THURSDAY'S SESSION.

Among the matters discussed and taken up at Thursday morning's session, after President Kling called the meeting to order, was the report from **E. C. Kissinger**, who represents this association in the Ohio Shippers' Association. His report was exhaustive and interesting. He told of the success of the Ohio Shippers' Association in securing the co-operation of the railroads, and the adoption of improved methods in receiving cars, handling freight and securing better service in every particular from the railroads. The secretary was authorized to furnish a copy of this report to the membership, and President Kling was authorized to appoint a special committee to aid in further co-operation for the general good of the business in railroad lines. The committee appointed was composed of **E. C. Kissinger**, **J. W. Eichelberger** and **Charles McCammon**.

The next matter before the meeting was the discussion of the advisability of doing away with the cotton bag in shipping cement and plaster. Many of the manufacturers present favored paper in preference to cloth, but thought in many instances it was not possible to carry out this recommendation, therefore the meeting authorized a conference on this subject with the manufacturers with the end in view of remedying the losses now concurred in connection with using cotton bags, owing to loss of jute bags and the many annoyances attending same.

EXECUTIVE COMMITTEE REPORTS.

Among the recommendations which were acted upon by the executive committee, was that if the next meeting take place in the summer, it be held at Atlantic City, and the secretary was instructed to take the matter up by correspondence with the individual members as to the advisability of two meetings a year, and if they favored a summer meeting, whether or not Atlantic City should be favored.

A vote of thanks was then tendered to the local committee for their hard labors and very pleasant occasions due to their efforts, especially to the president, officers, directors and members of the Cleveland Builders' Supply Association, **Mr. Lawrence Hitchcock**, **E. A. Roberts**, secretary of the Cleveland Builders' Exchange, and the gentlemen who so ably addressed the meeting on trade subjects; **Mr. McAllister**, of the Builders' Exchange, for his co-operation, the Chamber of Commerce for their friendly welcome, to Rock Products for its enterprise and aid to the association at all times, and last but not least, the representatives of the Lumbermen's Association who came there to enlighten us on the possibilities of organization, and especially to the gentlemen, **Mr. Hunter**, **Mr. Gorsuch** and **Mr. Hollis**. These recommendations were adopted unanimously.

A resolution of thanks was extended to the hotel management for their good treatment, and the executive committee of the association was authorized to visit the next meeting of the association in connection with the lumber trade for further investigation, and if possible to secure the co-operation of their combined bodies with their association.

On Tuesday afternoon the executive committee and the vice president met to compare notes and work out plans for the work of the year, and in closing this session they could only compliment the Builders' Supply Association to a man, on their consistent efforts to build up the association. The splendid gathering at Cleveland attested the sincerity and worth of their cause and they look forward to great efforts in the future by this body.

THE ATTENDANCE.

The final records show that three hundred and forty-one men attended the sixth annual meeting of the National Builders' Supply association. There were thirty-three ladies registered. Following is the full, revised list of names:

CANADA.

Toronto:—**W. E. Henderson**, **John A. Reebe**, **Imperial Plaster Co.**

CONNECTICUT.

Bridgeport:—**H. C. Godfrey**, **Lilliman & Godfrey Co.**

Stamford:—**L. C. Weed**, **Blount Lime & Cement Co.**

DELAWARE.

Wilmington:—**C. W. Bye**, **Chas. Warner**, **Chas. Warner Co.**

ILLINOIS.

Chicago:—**Ernest McCollough**, **Municipal Engineering & Contracting Co.**; **W. E. Cobett**, **C. H. Wood**, **Wolverine Portland Cement Co.**; **J. H. Shay**, **Chicago Belting Co.**; **S. P. Blount**, **C. M. Foster**, **Meacham & Wright Co.**; **John E. Britt**, **F. H. Hammond**, **Chicago Belting Co.**; **Ben T. Affleck**, **cement department**, **Illinois Steel Co.**; **F. G. Proudfoot**, **N. A. Williams Co.**; **E. B. Hoy**, "National Builder"; **J. W. Woodruff**, **Chicago Portland Cement Co.**; **Edward Hennessey**, **Alpha Portland Cement Co.**; **F. D. Meacham**, **Meacham & Wright Co.**

Chillicothe:—**E. F. Hunter**, **H. & F. Hunter**, **Danville**:—**N. E. Holden**.

Decatur:—**G. J. Parke**, **V. H. Parke & Sons Co.**

Granite City:—A. W. Eisenmayer, Granite, Lime & Cement Co.

INDIANA.

Indianapolis:—Fred Goepfer, A. B. Meyer, A. B. Meyer & Co.; E. T. Randall, Municipal Engineering Co.; E. Bradshaw, Indianapolis Mortar & Fuel Co.; F. E. Paulson, Kelley Island Co.

Fort Wayne:—E. M. Baltes, T. C. Schwieler, E. M. Baltes & Co.; C. E. Molering, E. H. Molering, Wm. Molering's Sons.

Terre Haute:—J. W. Landrum, Terre Haute Coal & Lime Co.

Auburn:—S. L. Kelly, F. A. Borst, Ideal Concrete Machinery Co.

Huntington:—A. L. Beck, Mitchell Lime Co.; Peter Martin, Western Lime Co.

Richmond:—D. L. Mather, Mather Bros.

Lafayette:—H. B. Lyman.

Marion:—G. A. Southall, Southall & Co.

KANSAS.

Iola:—B. E. Allison, Kansas Portland Cement Co.

KENTUCKY.

Louisville:—E. H. Defebaugh, S. V. Poppel, Harry Hurst, Rock Products; John B. Campbell, Kentucky Wall Plaster Co.; J. A. Fairleigh, Western Cement Co.

Covington:—T. W. Spinks.

Ashland:—Col. Frank Coles, Ashland Iron & Mining Co.

MARYLAND.

Baltimore:—Addison H. Clarke, William Wirt Clarke & Son; Henry W. Classen, Chas. H. Classen, Maryland Lime & Cement Co.

MASSACHUSETTS.

Boston:—James G. Lincoln, Waldo Bros.; Jas. K. Davis.

MICHIGAN.

Detroit:—C. H. Little, C. H. Little Co.; H. T. J. Furman, Charles Roe, Furman Construction Co.; T. H. Twitcheell, Concrete Publishing H. Houghton, A. W. Maynes, Detroit Bag Co.; W. F. Baker, C. K. Williams & Co.; John J. McKerchey, Eugene Dahl, Reading Dispatch; F. B. Holmes, F. B. Holmes & Co.

Bay City:—E. E. Evans, Boutell Bros. & Co.

Jonesville:—Charles F. Wade, Omega, Portland Cement Co.

Port Huron:—J. B. Pettit, Port Huron Wood Plaster Co.

Grand Rapids:—James Leenhouts, A. H. Apted, Grand Rapids Plaster Co.; Geo. T. Burridge, Newaygo Portland Cement Co.

Jackson:—H. R. Breck, Chicago Sewer Pipe Co.; F. J. Van Alen, Michigan Sewer Pipe Co.; A. M. Lemke, Bartlett & Co.

MINNESOTA.

Minneapolis:—W. G. Hollis, Lumber Secretaries' Bureau of Information.

MISSOURI.

St. Louis:—C. W. Cobb, Glencoe Lime & Cement Co.; Gordon Willis, Hunkins & Willis Lime and Cement Co.

Kansas City:—Harry A. Gorsuch, Southwestern Lumberman's Association; Howard McCutcheon, C. A. Brockett Cement Co.

NEW JERSEY.

Newark:—Andrew Tompkins, Tompkins Bros.

NEW YORK.

New York City:—Ralph Peverley, Commercial Wood & Cement Co.; F. H. Upton, Toch Bros. Damp Resisting Paint Co.; E. D. Boyer, C. A. Kimball, Atlas Portland Cement Co.; Jos. H. Loughman, W. N. Beach, Pennsylvania Portland Cement Co.; Thos. A. Macieff, Atlas Portland Cement Co.; Albert Mover, Vulcanite Portland Cement Co.; Wm. V. Mack, Pennsylvania Portland Cement Co.; T. D. Cone, National New Process Lime Co.

Buffalo:—W. C. Newman, Union Akron Cement Co.; Alfred W. Thone, Thone Cement Co.; Edwin Puzey, Union Akron Cement Co.; J. N. Ross, M. A. Reeb, Chas. C. Calkins, J. B. King & Co.; E. C. Bacon, Iroquois Portland Cement Co.

Syracuse:—H. E. Dingley, National Wall Plaster Co. of America.

Tonawanda:—Frank H. Fuller, Natural Roofing Co.

Dunkirk:—S. M. Hamilton.

Clinton:—E. B. Stanley, Clinton Metallic Paint Co.

OHIO.

Cleveland:—John A. Kling, Robert Beck, C. W. Fitch, Cleveland Builders Supply Co.; O. F. Ferriman, Forrester Plaster Co.; Edward A. Robert, Builders' Exchange; S. L. Avery, W. E. Shearer, B. W. McCausland, Jr., George D. Elwell, U. S. Gypsum Co.; T. W. Douglass, Stewart Cement Co.; G. Babcock, L. A. Rounds, C. A. Hummel, Philip Carey Manufacturing Co.; Lawrence Hitchcock, Kelley Island Lime & Transport Co.; Charles H. Tock, Tock Bros. Damp Resisting Paint Co.; T. O. Diebler, Philip Carey Man'g Co.; Wm. R. Worley, Imperial Clay Co.; C. S. Bigsby, B. Bigsby, Jr., Garry Iron & Steel Co.; M. W. Mulhauser, Standard Sand & Machine Co.; Joseph McKee, H. K. Mulford Co., Philadelphia; L. A. Corbett, Sackett Wall Board Co., New York; Hugh Crawford, Crawford Man'g Co.; Harry G'lett, R. M. Erickson, H. W. Johns-Manville Co.; C. F. Miller, F. J. Spear, Cleveland Builders' Supply Co.; W. A. Pardee, Henry Angel, E. J. Kenealy, F. J. Devor, W. E. Veits, C. M. Handy, Kelley Island Lime and Transport Co.; F. E. Richards, Cleveland Builders' Supply Co.; Newton D. Baker, W. McAllister, Cleveland Builders' Exchange; M. D. Lucas, R. L. Molyneux, J. B. Molyneux, A. B. Molyneux & Co.; G. E. Kappeler, F. E. Hall, Cleveland-Akron Bag Co.; J. A. Broughton, H. G. Broughton, Standard Sand & Machine Co.; Edward Hunt, G. W. Todd & Co.; J. C. Wicks, V. L. Hurst, H. Davidson, Garry Iron & Steel Co.; Julius P. Fichow, C. E. Kapitzky, C. B. Stowe, Stowe-Fuller Co.; John Eisenman, Builders' Code Commission; W. C. Langman, Langman Manufacturing Co.; Chester M. Harris, Builders' Exchange; C. T. Knowlton, George Klemm, Cleveland-Akron Bag Co.; E. B. Coolidge, Wm. H. H. Rose, Art Stone Co.; F. Devor, Kelley Island & Transport Co.; F. W. Lawrence, Fred W. Haglock, L. D. Wheeler, A. G. Cooper, Art Stone Publishing Co.; John R. Bentley, Cleveland Trinidad Paving Co.; Victor P. Hendrick, Empire Forge & Iron Co.; R. Titus, Forrester Plaster Co.; Henry A. Taylor, W. Bingham Co.; W. C. Sadler, F. M. Bachelor, Fayette Brown, Jr., Stewart Iron Co.; Gus P. Bond.

Toledo:—Richard Kind, Toledo Builders' Supply Co.; L. G. Powell, Fishback Plaster Co.; H. S. West, Association; B. F. Andrews, Builders' Supply Co.; J. J. Urschel, Acme Coal, Wood & Building Supply Co.; A. R. Kohlman, Toledo Builders' Supply Co.; L. G. Fishback, Louis G. Powell, Fishback Plaster Co.; J. P. Degnan, Builders' Supply Co.; J. P. Murphy, Nickel Plate Line; W. O. Holst, A. H. Gallagher, W. H. Bergin, Robinson-Graves Sewer Pipe Co.; Edward G. Wav, National Builders' Supply Co.; P. H. Deenan, Toledo Builders' Supply Co.; R. S. Thurston, Ohio Lime Co.; T. D. Doherty, T. G. Degnan, Toledo Builders' Supply Co.; O. C. Maurer, Buckeye Lime Co.; Christian H. Beins, Doherty & Co.; F. B. Jones, Acme Coal, Wood & Builders' Supply Co.; R. R. Brand, Toledo White Lime Co.; G. W. Frazer, Ann Arbor R. R.

Cincinnati:—C. E. McCammon, L. H. McCammon Bros.; W. W. Correy, Correy Supply Co.; F. Lawson Moore, Moore Supply Co.; E. L. Kennedy, E. J. Tully, Contractors & Builders' Supply Co.; Joseph C. Butler, Ashland Iron & Mining Co.

Columbus:—N. J. Ruegles, Rock Plaster Co.; J. A. and E. B. McDowell, Winget Concrete Machine Co.; C. H. Doan, Nelsonville Sewer Pipe Co.; J. W. Jeffrey, Jeffrey Man'g Co.; J. P. Carlisle, A. Hamilton, Hamilton-Parker Co.; E. C. Kissinger, E. C. Baker, Diamond Portland Cement Co.; J. F. Angell, Winget Concrete Machine Co.

Akron:—Charles C. Botzum, Botzum Bros.; Clarence C. Honland, Chas. Phillips Co.; I. T. Akers, Akron Supply Co.; F. W. Haroman, Vitriified Clay Manf. Co.; F. A. Waldeck, American Sewer Pipe Co.; H. B. Martin, Robinson Clay Product Co.; Elihu Harnham, E. H. Gibbs, A. J. Brewster, Buckeye & Summit Sewer Pipe Co.; H. F. Rowse, Robinson Clay Products Co.; L. C. Konlin, D. L. Dolson, Thos. Phillips Co.; F. M. Harnham, Akron Vitriified Clay Manf. Co.; Frank Howland, Thos. Phillips Co.; A. V. Spahr, F. C. Burt, W. A. Hilton, Robinson Clay Products Co.

Youngstown:—H. H. Clingan, Mahoning Builders' Supply Co.; H. B. McMaster, Gen. Fireproofing Co.; E. B. Walton, Ed Holwafr,

Youngstown Ice Co.; Carl Schmutz, Brier Hill Iron & Coal Co.; John O. Pew, Youngstown Iron & Steel Roofing Co.

Sandusky:—A. G. Whitney, Cleveland Builders Supply Co.; P. B. Biery, Sandusky Portland Cement Co.; C. L. Johnson, Castalia Portland Cement Co.; E. J. Messig, Wagner Lake Ice & Coal Co.

Schawnee:—S. M. Gould, Ohio Mining & Manf. Co.

Stryker:—Hon. J. D. Ramsey.

Niles:—Wm. G. Hurlburt, Bostwick Steel Lath Co.; L. F. Stewart, Sykes Metal Lathe & Roofing Co.

Medina:—B. Pelton, The Wood Co.; W. I. Kennedy, C. R. Warner, Medina Concrete Co.

Zanesville:—R. L. Quesser, Ohio Pressed Brick Co.; R. H. Rutherford, Oakland Pressed Brick Co.

Genoa:—E. F. Gregg, Buckeye Lime Co.

Mineral City:—Geo. J. Markley, J. Ira Day, Lockland—John Mueller, Chas. A. Hummel, Philip Carey Manufacturing Co.; Frank Hienkle.

Marblehead:—W. M. Harsh, Kelley Island Lime and Transport Co.

Massillon:—William G. Hipp.

Canton:—H. S. Reckert, Metropolitan Paving Brick Co.

Wooster:—W. L. Gray, Gray & Son, Builders' Supplies.

Bellefontaine:—Chas. F. O'Donnell, Buckeye Portland Cement Co.

Marion:—Geo. B. Christian, Jr., Norris & Christian; L. V. Uncaphor, Central Ohio Lime & Stone Co.

Lorain:—W. W. Hoffman, Lorain Supply Co.

Gibsonburg:—F. W. Zorn, Standard Lime Co.

Delaware:—H. E. Kendrick, Scioto Lime & Stone Co.

Port Clinton:—F. S. Culver, Ohio Retarder Co.

Elyria:—A. M. Reams, W. S. Griswold, Elyria Wood Plaster Co.; C. M. Runyan, Concrete Block Machine.

Irondale:—T. W. Owesney, East Ohio Sewer Pipe Co.

Urichsville:—A. Robinson, Robinson-Graves Sewer Pipe Co.; D. E. Blans, Blans Stucco Retarder Co.

Davton:—W. M. Adelberger, Star Coal & Cement Co.; G. H. Gengnagel, J. W. Elcheiberger.

Wickliffe:—John Kline.

Magadore:—Geo. T. Whitmore, Fred W. Fogarty, Granite Clay Co.

Stuebenville:—F. C. Pew, Elastic Pulp Plaster Co.

PENNSYLVANIA.

Philadelphia:—Walter T. Bradley, Walter T. Bradley Co., builders supplies; William J. Donaldson, Alma Portland Cement Co.; H. F. Rauch, Whitehall Portland Cement Co.; H. B. Green, Whitehall Portland Cement Co.; Cyrus Borgner, Borener & Co.; I. Bullant, Metztown Manf. Co.; W. H. Harding, Morris M. Hunter, Bonnevill Portland Cement Co.; L. V. Clark, O. G. Johnson, Lawrence Cement Co.; C. M. Cawm, Lesley & Trinkle Co.; A. H. Fetter, Jno. H. Holmes, J. B. King & Co.; Wm. Irvine, Knickbocker Lime Co.; D. C. McCurdy, D. C. McCurdy & Co.; F. M. Hoover, Northampton Portland Cement Co.; Sam Vail, Whitehall Portland Cement Co.; G. W. Roydhouse, Bath Portland Cement Co.

Erie:—J. N. Thayer, O. C. Thayer & Son; W. B. Schafer, Frank E. Boyd, Boyd & Schafer.

Elizabeth:—T. E. Beebe, International Cement Co.

Pittsburg:—D. J. Kennedy, D. J. Kennedy Co.; J. O. Freeman, American Sewer Pipe Co.; W. T. Williams, John A. Strous, Knox, Strous & Binedon, A. H. Lauman, Standard Lime Co.; Fred North, Hazard Manf. Co.; W. J. Prentice, G. W. Hackett, Castalia Portland Cement Co.; S. M. Houston, J. J. Hass, W. C. Rae, Houston Bros Co.; J. M. McClare, W. Wallace, American Sewer Pipe Co.; Frederick W. McKee, E. L. Devor, Duquesne Fireproofing Co.; Wm. T. Leggett, Robert L. McKillip, L. S. McKillip & Co.; Howell Lloyd, Alma Cement Co.; Geo. T. Heppenstall, Heppenstall & Marquis; J. C. Adams, D. J. Kennedy Co.; J. W. Enoch, Flint, Irving & Stoner; D. C. McCurdy, D. C. McCurdy Co.; G. S. Murray, Murray Bros.; R. E. Chapin, Cheat River Lumber Co.

Bradford:—M. Cohn, Enamel Art and Metal Co.

Braddock:—J. M. Horner, McCrady Bros. Co.

Scranton:—Luther Keller.

Allegheny:—Charles F. Their, Patterson Coal & Supply Co.

Wilkesbarre:—G. N. McAlarney.

Lock Haven:—L. C. Andrews, Queens Run Fire Brick Co.

Jamestown:—Kent E. Lyman, Jamestown Paint & Varnish Co.

Newcastle:—Charles F. Towne, Newcastle Pulp Plaster Co.

Catesauqua:—H. J. Seamans, Atlas Portland Cement Co.

Allentown:—A. G. Croil, Atlas Portland Cement Co.; Charles A. Matchan, George G. Sykes, Lehigh Portland Cement Co.

Easton:—Geo. W. Mitman, C. K. Williams & Co.

RHODE ISLAND.

Providence:—Merrick D. Goff, Jas. G. Goff.

WISCONSIN.

Milwaukee:—Chas. Weiler, Western Lime & Cement Co.; August C. Tews, Tews Bros.; Edward Bogk, Ricketson Mineral Paint Co.

WEST VIRGINIA.

Parkersburg:—J. B. Arbour, Marietta Plaster Co. and National Plaster Supply Co.

Wheeling:—R. W. Marshall, Wheeling Wall Plaster Co.

Fairmount:—J. M. Black, Fairmount Wall Plaster Co.

LADIES PRESENT.

The ladies present at the meeting were: Mrs. Edward M. Baltes, Ft. Wayne, Ind.; Mrs. Fred Goepfer, Indianapolis, Ind.; Mrs. C. H. Classen, Baltimore, Md.; Mrs. H. B. Lyman, Lafayette, Ind.; Mrs. Walter T. Bradley, Philadelphia, Pa.; Mrs. D. J. Kennedy, Pittsburg, Pa.; Mrs. J. A. Fairleigh, Louisville, Ky.; Mrs. George N. McAlarney, Wilkes Bend, Pa.; Mrs. E. H. Gibbs, Mrs. Elihu Harpman, Akron, O.; Mrs. A. Kind, Toledo, O.; Mrs. F. M. Hartman, Mrs. Charlotte Vogt, Mrs. W. A. Pardee, Mrs. C. L. Johnson, Cleveland, O.; Mrs. Whitmore, Mrs. Tom Palmer, Akron, O.; Mrs. Howard McCutcheon, Kansas City; Mrs. Alfred W. Thorn, Buffalo, N. Y.; Mrs. J. M. Hoover, Pittsburg, Pa.; Esther E. Kling, Jennie A. Harris, Alice de Wolf Viets, Emma Betts, Cleveland, O.; Mrs. A. Brewster, Akron, O.; Mrs. Clarence Howland, Akron, O.; Mrs. W. T. Akers, Mrs. F. M. Harpman, Akron, O.; Mrs. E. F. Gregg, Geneva, O.; Mrs. O. C. Maurer, Toledo, O.; Mrs. Charles Schmutz, Youngstown, O.

SOCIAL SESSIONS.

The Theatre Party at Kieth's was composed of 200 delegates. It was vaudeville of high grade and while the "bald headed row" were not used as "butlers" to work off stale jokes.

The annual smoker Wednesday, 8 p. m., brought together 300 odd delegates and their friends, the manufacturers. The palm room was full. Seated at individual tables was a happy lot of gentlemen.

It was 9 o'clock before things started, but when the "Red Girl" came on the scene with her repertoire, things got lively. She evidently had a few sallies up her sleeve, for Grandpa Little was made much of and Mr. Joe Loughman, of New York, was picked out at once. She said he was a graduate from the Bowery. Gordon Willis was denounced from the stage and so were one or two bald-headed gentlemen who were located near him.

Prof. Seaman, of the Atlas, was hard to keep off the stage, for the lady talked real sassy to him.

The Go-quick Quartette or whatever you might call it, furnished fine music. The crowd did not appreciate this as much as it might, for it happened about the time the sauer-kraut, wienies and beer furnished by the committee arrived on the scene. How could they? They were busy.

Col. Bradley, of Cleveland, who was the crack story teller among our hosts, furnished a few Irish yarns that put everybody in a good humor.

About this time the president read a telegram from the mayor of the city, withdrawing his welcome and asking that the keys of the town be returned, owing to the actions of some of the members in carrying off town pumps, water pipes, etc.

The next act was by our own comedians, Jos. Degnan and Billy Holst, of Toledo. Holst had a siphon and Joe took the water. It was hard on his constitution, but he took it, dress suit and all. Andy Robinson was to have been the mark, but he didn't have but one dress suit with him, and Joe did not care about his dress suit. This was a funny act for everybody except Degnan.

The dignified Gordon Willis was called on to make a speech, and he did it. His handkerchief story was real good, but somebody drove him off the stage and the Master of Ceremonies had to call for order and for other speech makers.

W. G. Hollis, of Minneapolis, told us some Norwegian stories and a yarn which put Dick Kind in a very embarrassing position because his wife was looking on.

Ralph Peeverly, of New York, made himself properly agreeable entertaining us, as did David Todd, of slag cement fame, and then.

THE LECTURE.

(Supply the pictures by imagination.)

Gentlemen: I believe it was Longfellow who said:

Lives of great men all remind us
We can make our lives sublime,
And departing, leave behind us,
Footprints on the sands of time.

America is noted for her great men. From Washington to our fighting Roosevelt, we have produced the greatest and best statesmen of the world. But not alone in statesmen does America excel. We have the world beaten with our financiers, our authors, and our captains of industry.

So deeply was I impressed with the likenesses of our now famous men that I negotiated, at a considerable cost, for a few of the pictures and have had them reproduced in order that you may all have the benefit of seeing them. I will endeavor to explain as nearly as I can the personal element in the portraits by the help of a newly invented machine for mixing concrete.

Richard Kind, the Fighting Secretary.

He is a fighter, a man of action. There is only one thing he would rather do than fight and that is to eat. The gentleman to whom I refer is "kindly" in manner, when he is asleep. You all know him, or know about him. By the aid of this wonderful instrument, we have produced his photograph taken while he was in action.

He is the father of a brave son, who is following in the footsteps of his dad by playing football in a cowboy team somewhere west of the Mississippi.

Cobb, the Governor's Brother.

Away up in the piney woods of Maine, about a half century ago, was born a little shaver, destined to be known in history as the brother of a Governor. He was so devoted to hitting the pipe in his early days that they named him "Cobb." He is a modest gentleman who shrinks from publicity; especially does it embarrass him greatly to refer to the fact that his brother sits in the Executive Chair, while he served as a guide to visitors at the World's Fair.

I wish to personally thank Mr. Cobb for assisting me to secure these portraits.

Ladies' Man, Hitchcock.

In order to vary the program slightly at this point, I will introduce to you a young man, who already has captured the hearts of the younger ladies in attendance at the convention. My object in presenting him thus early in the series is that the married men may be on their guard, for he is a heart smasher of the 32nd degree. He has a fine college record, especially for smoking cigarettes and attending banquets. His chief occupation with the Kelley Island Lime Co. is to read the matrimonial journals, in the hope that he may be able to "cement" his fortune to that of a good-looking girl.

Davis on Judgments and Bulldogs.

When Rip Van Winkle returned from his long sleep, the friend he missed most was his faithful dog "Schneider." If dogs go to heaven and the good friend whose face is portrayed upon this canvass is fortunate enough to get there himself, which we doubt, there will be many familiar barks.

Mr. Davis has the distinction of owning the ugliest bull dogs that ever drew breath. They are the terror to tramps in Boston. In fact, the city authorities are said to pay Mr. Davis a rake-off for maintaining them as a means of keeping the city rid of vagrants. This is the latest Boston idea on municipal reform. But to see Mr. Davis smile his sweetest smile, just ask him about that judgment of \$88,000.00, but don't monkey with the bull dog.

Johnson No. 1, and Castoria.

I hesitate to disclose the next picture. There are times when "silence is golden." Our dear friend, Johnson, was married about a year ago. This picture tells the rest. As he walks the floor, he is singing that beautiful little song we all learned in the Sunday-school, "Still, there's more to follow."

Loughman, Who Resembles Pliha.

A good advertisement for Ayer's Hair Restorer. The subject of this sketch may have taken some-

thing to keep it growing, but up to present writing, has dismally failed. He says that he once had hair, but has lost the affidavits of members of his family to prove it. However, he takes comfort out of the fact that in this respect at least he is very much like Rockefeller, "Gone, but not forgotten."

Col. Little, Our First President.

Even though I may be accused of a breach of etiquette, I am going to tell you a little story about my predecessor, Colonel Little. When the convention met in Cleveland some five years ago, Brother Little was inveigled into taking a walk with Brother Angel, our good Methodist member, for a little fresh air. They wandered toward the Lake Front, to listen to the wild waves, but I shudder to relate it, accidentally met some chance acquaintance, and, how time flies under such circumstances.

The Colonel wants to know who is the architect. It is an honest truth that when we looked for our president at 11 o'clock the next day, here is where we found him. The records, however, still show that the sessions opened promptly at 9 o'clock.

Kennedy, as a Magician.

In olden times, miracles were wrought. You all recall the story of how water was turned into wine and bread to stone, but it remained for Bro. Kennedy to change limestone to coke. How he did it still remains a mystery to Bro. Walton, who purchased a liberal supply of the product, and still has it.

This is how it came about. Mr. Kennedy was long on coke and Walton short, and Bro. Kennedy, being charitable, volunteered to sell Mr. Walton a part of his possessions, but on arrival, Mr. Walton's customers threatened to prosecute him for fraud and have affidavits that what was sold them as coke was nothing more than limestone, liberally daubed with black paint.

Willis Fats Keene's.

There may be a few people in the audience who do not know what Mr. Willis sells, but very few. When the Japanese write letters, they usually do it on the back of wall-paper and roll up the product, sending it by express.

The only objection he has to this hotel is that the waiters persist in serving "Force" and "Quaker Oats" instead of Keene's Cement for breakfast.

Calkins Sadly Afflicted.

If there is one man above another entitled to the name of "Sphinx," Charlie Calkins is the fellow. His best friends regard him as the educated mute. Since his youth, he has been tongue-tied. It is sad to be thus afflicted and he knows we all sympathize with him, from the great volume of business we give him.

This picture is a base libel and was intended for another fellow. You will notice that the arm of the customer he is addressing is missing. The riddle is, "What has become of it?" A liberal prize will be offered in the form of a souvenir spoon to the gentleman who will send in the first correct answer.

Angel With Wings and Stein.

Another local celebrity whose face is familiar to you, although you may not recognize it in this photograph. By close scrutiny, you will see that his wings are sprouting. They were first discovered to be growing at Buffalo. He will sing for you his little song.

"I want to be an angel and with the angels stand, An ice block on my forehead, a schooner in my hand."

Stanley Rhodes, the Fheatist.

"Words fitly spoken are like apples of gold in pictures of silver." You will readily recall how aptly this Biblical saying exemplifies the story told by Brother Rhodes at the Indianapolis convention.

Walton, the Ice Man.

One can not help but wonder how an ice man can keep such a warm heart as beats under his vest. It is also reported, on doubtful authority, that he gives 2,200 pounds of coal for a ton, to make up for short weight ice in the summer.

Ikenstein then made a speech and entertained the boys for a while, and after thanks for the special effort of Secretary Roberts to make this a grand success, the meeting adjourned at 12 p. m., after enjoying one of the most pleasant convention sessions we have ever attended.

INDIANA OOLITIC LIMESTONE



THE INDIANA STATE SOLDIERS' AND SAILORS' MONUMENT.

The splendid city of Indianapolis stands as the visible expression of the highest aspirations and most notable achievements of the citizen of the great State of Indiana. The life of this important member of the Union centers in its proud capital city and metropolis, and following up the countless threads of vitality to their source we find them converging to a common point in the magnificent soldiers and sailors' monument in the very heart of the great community.

The monument commemorates the heroic deeds of the men who made Indiana what she is to-day at the cost of their own blood, and it is eminently fitting that posterity should express its appreciation through an imperishable medium taken from the native hillsides of the land for which they fought and died. Indiana Oolitic limestone from the Bedford quarries is the material of which the monument is built, and never has this handsome and

durable stone been more appropriately used. The monument itself is a triumph of art and challenges the unbounded admiration of all who see it. Its lofty shaft, crowned with the figure of Victory, towers high above the buildings that surround it, and catches the eye from every part of the city.

The monument was designed by Bruno Schmidt, the great German architect. Its construction was authorized by the general assembly of the State of Indiana, and the total cost defrayed from various sources in addition to \$300,000.00 appropriated by the State was in excess of \$500,000.00. It stands in what was originally known as The Circle, but what is now called Monument Place, in the very center of the city. The summit of the monument is reached by an elevator and stairway, and from this lofty height a magnificent view of the city of Indianapolis and the surrounding country is to be had.

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and
Blue
Blocks**



**Sawed,
Planed
and
Turned**

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Main Office, 443 Fifth Ave., CHICAGO.

More Oolitic Limestone Ads. on Page 7.

INDIANAPOLIS MEETING.

Organization of the National Association of
Cement Users January 17, 18 and 19.

LARGE ATTENDANCE AND ENTHUSIASM.

The movement started at the St. Louis Fair last summer to form an association of the makers of hollow building blocks and machines, broadened in scope so as to include all cement users, and culminated in the formation at Indianapolis, Ind., on January 17-19, of the National Association of Cement Users.

The interest in this convention far surpassed expectations, as was shown by the large attendance. It was thought that 250 or 300 persons would be present, but the number of those who came was 617. These delegates were from all parts of the United States, and there was one from Honolulu. Every branch of the cement industry was represented, and by the men who were foremost in their respective lines.

The great good which will result from the union of these interests, the mutual advancement and the general betterment of conditions, is so obvious that it scarcely need be dwelt upon.

In the organization of the new association the officers were chosen with a view to having represented every branch of the cement industry.

The constitution adopted, after thorough discussion, represents the best and broadest thought of the members present. A careful perusal of its lines will show the spirit which animated the convention, as well as give practical evidence of their knowledge of the particular needs of association effort.

In the selection of officers, and the adoption of the constitution and by-laws, after interesting debate and controversy such selection of men was made and such measures adopted as will conserve the best interest of the industry as a whole, and for the benefit of no particular men or set of men, and this is certainly as it should be—the only guarantee of permanent usefulness to the organization.

The following temporary officers were selected: John P. Given, president; A. M. Goetzmann, first vice president; John H. Fellows, second vice president; A. Monsted, third vice president; Charles Carroll Brown, secretary; S. J. Gammon, treasurer.

The convention was held in the Assembly Hall at the Claypool Hotel, and the exhibits of the various machinery interests consumed one entire floor of the building, the sumptuous accommodations of which most of the delegates enjoyed.

From early morning until midnight a constant stream of members, and those interested in cement, poured through the upper corridors of the hotel, and in and out of the rooms containing the exhibits. The headquarters of Rock Products were never vacant, its friends calling to pay their respects in large numbers.

Some idea of the magnitude of the meeting and its great importance to the trade, can be grasped from the following list of those who attended:

THE ATTENDANCE.

Canada.

TORONTO—Charles D. Watson, Roman Stone Co.

Colorado.

DENVER—J. J. Abbott, Cement Products Co.; W. J. Scott, H. D. Watson, American Hydraulic Stone Co.

District of Columbia.

WASHINGTON—W. W. Benson, H. S. Palmer, George Vogel, Henry Wood, J. F. Messick, C. H. Staples, C. F. Childers, H. S. Palmer Co.; J. F. Golding.

Georgia.

DUBLIN—H. C. Quinn, Georgia Hydraulic Stone Co.

Hawaii.

HONOLULU—E. J. Lord, Lord & Belser.

Illinois.

CHICAGO—D. A. McBride; Fred Asp; W. W. Dickinson, Marquette Portland Cement Co.; L. P. Boyles; C. H. Bathrick, Earnest McCullough, Municipal Engineering and Contracting Co.; C. L. Huyck; E. B. Hoy; A. L. Goetzmann; E. S. Hotchkiss, Hotchkiss Concrete Stone Co.; William Seafort, Cement and Engineering News; H. H. Pierce; F. G. Hill; G. Cutler; E. A. Parsons; F. E. Davenport; R. C. Burmood; George P. Schwaab; C. D. Smith; W. B. Myers; L. N. Rice; Rolly E. Jackson; B. F. Affleck, J. C. Van Dorn, C. K. Walker, B. H. Rader, Universal Portland Cement Co.;



JOHN P. GIVEN, CIRCLEVILLE, OHIO, PRESIDENT,
National Association Cement Users.

Gen. H. A. Wheeler; George W. Powers; J. E. White; W. W. Ramsey; A. E. Taylor; P. S. Johnson; S. W. Curtis; Garden City Sand Co.; W. E. Cobean; E. Osgood.

JERSEYVILLE—F. M. Frost, Frost & Son.

CARROLLTON—J. Ray Williams.

PEKIN—Adam Saal, Saal & Brooking.

SPRINGFIELD—Joseph W. Vance.

LOSTANT—B. H. Graves.

ALTON—E. C. Mack.

HIGHLAND—Fred Stocker.

PRINCETON—C. F. Scott.

CHAMPAIGN—J. M. Osmun.

DECATUR—B. F. Stanley; A. F. Gelhart.

URBANA—J. P. Grubbs.

PAXTON—E. J. Westbrook.

HOMER—James Farley.

PIPER CITY—W. O. McKinney.

GIBSON—I. L. Shaw.

ROCKFORD—W. W. Sawyer.

PERU—Joe Trompeter, E. F. W. Weberling.

DANVILLE—J. N. Rush; Homer Rush.

KANKAKEE—Arlin A. Swan, John Dwore; H. S. Van Meter; W. M. Hilderbrand; W. H. Smith.

DANVILLE—C. F. Perkins; J. N. Rush; Homer Rush.

SULLIVAN—L. R. Heishman.

MATTOON—Harry L. Powell; A. C. Loomis; D. P. Rose.

PARIS—J. W. Stewart.

QUINCY—J. G. Clough.

HARVARD—M. D. Roach; W. H. Ward.

PEORIA—A. J. Merdeth.

HAMMOND—D. L. Gaskill.

MT. MORRIS—Buser Concrete Construction Co.

BLOOMINGTON—R. Hasenwinkle.

Indiana.

INDIANAPOLIS—Charles Carroll Brown, S. W. Peet, F. T. Randall, William Fortune, Russell Fortune, Municipal Engineering, 408 Commercial Club Building; A. R. Edmonds, W. F. Barrows, H. Rains, Standard Cement Block and Construction Co., 325 W. 26th Street; H. E. Goodwin, 208 Blake Street; W. A. Bruce, H. F. Hagedorn, W. H. Benton, Everett Wagner, S. J. Rice, Block Bridge and Culvert Co.; J. R. O'Neill, American Building Block Co.; George F. Meyer; A. Ferguson; A. Potts; J. D. Noble; J. A. Shearer; Harold Burdge; H. H. Symmes; Daniel B. Luten; J. O. Sloan; Simon L. Dunlap; A. C. Brown; Arthur L. Day, Fred W. Day, Walter L. Day, W. H. Beazel, E. O. Newell, Indianapolis Cement Products Co.; M. E. White; H. J. Prier; A. Shoemaker; J. W. Layman; E. R. Walker, J. T. Walker & Son; D. H. Falout; H. Dakin; A. E. Bradshaw; J. W. Jackson; J. T. Richards; T. A. Randall; Harry McKay; E. W. Howell; J. L. Jackson; H. C. Pomeroy; H. A. Mansfield; H. H. Griffin; B. Fay Kelly; E. Ingles, J. A. Ball, Lyde Fay, J. B. Long, J. Overman, Wm. Goodwin, A. Fitzgerald, H. E. Goodwin & Co., 208 Blake Street; Clayton T. Le Bau, Eureka Fence Post Co.; W. E. James, Indiana Cement Block and Post Co.; M. J. Collins; F. G. Higgins; William Burford; John Hohn; J. W. Hesley; Daniel Cleary; George Bedell; Paul Leiske; W. C. Allen; DeWitt V. Moore, Moore-Mansfield Construction Co.; J. W. Sterns; Charles Lawrence; Thomas D. Robbins.

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KENDALLVILLE—Adolph Adams.

ALEXANDRIA—T. J. O'Hara.

SOUTH BEND—R. O. Meyers; Harry Kemble; C. H. Defrees.

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GILFORD—H. F. Worthup.

WINAMAC—J. A. Johnson.

GREENFIELD—Earl Q. Jackson; E. A. Henby.

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CANTON.—J. A. McQuern; L. C. Bonnot; A. E. Wright; Charles Gonghauer.

BELLFONTAINE.—Charles F. O'Donnell.
SANDUSKY.—John Miller.

STEUBENVILLE.—Charles D. Floto, Concrete Construction Co.

ASHTABULA.—George L. Stanley, Portland Cement Works; H. A. McKinnon.

CIRCLEVILLE.—George T. Row, Pickaway Cement Block Co.

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ARLINGTON.—William A. Bibler.

MASSILLON.—Phillip Dieffenacher.
COLUMBUS GROVE.—Charles Killen.

Pennsylvania.

PITTSBURG.—Charles L. Johnson, Castalia Portland Cement Co.

PHILADELPHIA.—S. J. Vail, H. F. Rauch, Whitehall Portland Cement Co.; Richard L. Humphrey.

SCRANTON.—John H. Fellows, Fellows & Brown.
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YANKTON.—E. D. Palmer.

Tennessee.

NASHVILLE.—George Benedict; B. T. Young; R. M. Second.

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HASKELL.—R. E. Sherrill.
HOUSTON.—H. N. Jones.

Virginia.

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West Virginia.

WELLSBURG.—T. J. Reed.
WHEELING.—J. D. Wood.

PARKERSBURG.—J. W. Wood.
CLARKSBURG.—I. A. Jackson.

GASSAWAY.—J. A. Patterson.

Wisconsin.

MILWAUKEE.—H. F. Behrle, J. P. Sherer, Otto Gehrlar, National Building Block Co.; Edward Bogk, Ricketson Mineral Paint Co.; T. L. Smith;

S. D. Austin; W. C. Berthelett; J. R. Berthelett; R. J. Schwab; George J. Schwarz; A. Monsted;

R. B. Watrous; William C. Lantry.
BURLINGTON.—C. W. Diener.

APPLETON.—John Driscoll.
TWO RIVERS.—Frank L. Wolf.

POINT WASHINGTON.—Joe Ubbink.
JANESVILLE.—Alfred Meurer.

LAKE GENEVA.—H. E. Haskins.

OPENING SESSION.

The first session of the convention was held at 2:30 o'clock, Tuesday, January 17. Charles Carroll Brown, secretary of the local committee, calling the meeting to order.

Mr. Brown reviewed in brief the history of the movement which led to the present gathering. He dwelt upon the rapidly increasing use of cement, which had doubled in a few years. Many people, according to Mr. Brown, had gone into the cement business with very little knowledge of its requirements. This was especially true of the cement block men. Three years ago there was only one machine for the making of cement blocks in use. Now in the exhibit incident to the present meeting, twenty-one machines were shown, and that was not half of those on the market. The number of cement block manufacturers are growing all the time. Up to date, however, there had been numerous failures on account of lack of knowledge of the business and material, and requirements of builders and architects. He said there was also ignorance among many cement users in other lines which were represented in the present gathering; and the object of the association was to educate these men to generally advance the interest of cement users.

The question of calling a convention for the formation of such an association was first suggested about three years ago. Mr. Brown had a meeting with Mr. John P. Given at the St. Louis Fair, where he had discovered that they had been at work along similar lines.

Temporary Organization.

In forming plans and selecting a temporary chairman, Mr. Brown thought it necessary to select a man free from all entangling alliances, one with tact, ability and experience. He, therefore, nominated John P. Given, of Circleville, Ohio.

Mr. Given's nomination was seconded and his election made unanimous. He took his seat amidst applause.

Mr. Given thanked the convention for the honor conferred upon him. He did not see why the new body should not be among the most important in the country. The field was broad. He wanted the association to cover every line, monolithic, reinforced work, sidewalk, machine and block. Concerted action was necessary.

Mr. Swift nominated Charles C. Brown for temporary secretary, and that gentleman's election was made unanimous.

Chairman Given stated that the first move would be for the chair to appoint a committee on constitution and by-laws. After some little discussion regarding the scope of this committee, it was named as follows: E. B. Swift, Indianapolis, Ind., chairman; W. H. Phillips, Columbus, Ohio; Ernest McCullough, Chicago, Ill.; George H. Carlan, Oscar L. Lucer, W. E. Horn, Memphis, Tenn.; A. S. J. Gammon, Norfolk, Va.; J. P. Sherer, Milwaukee, Wis.; George L. Stanley, Ashtabula, Ohio; A. C. Birney, Albany, N. Y., and Mr. A. Bamburger, St. Louis, Mo.

This committee retired, the chair making a suggestion that in the recess following the first session, the various members of the association make known their choice for officers to the committee. He did not think it would be advisable to present the names on the floor of the convention.

The secretary announced that a change had been made in the program as printed, and Mr. Richard L. Humphrey, who was to have read a paper at the opening session, wished to illustrate it with stereoscopic views. Consequently this would be postponed until evening, while Mr. J. P. Sherer, of Milwaukee, would read his paper on the coloring of cement, that having been intended for the evening session.

Mr. Sherer's paper was listened to with deep attention. In substance it was as follows:

COLORING OF CONCRETE.

BY J. P. SHERER, MILWAUKEE.

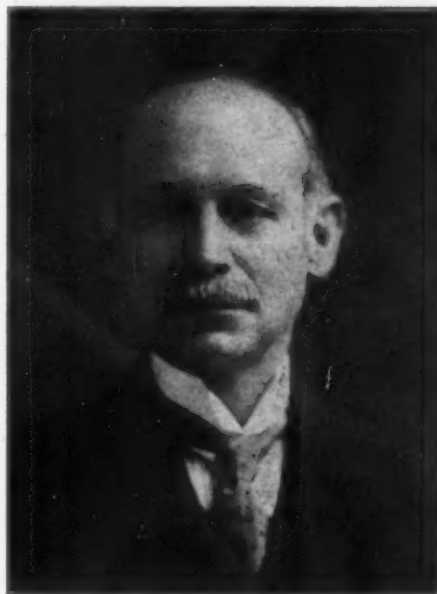
Having been requested to make a few remarks on the coloring of concrete, I will endeavor to give you my experience in that line. My company has made many experiments.

First, I will state we found that ground colored natural stone and mineral iron oxide were the most desirable and practical, from the fact that they in no way weaken or damage the setting qualities of our stone, but, on the contrary, they add very materially to the strength of the finished product. We tested many different coloring compounds, some with fair results, but all those containing acids or greases (among these are graphites and lamp blacks) are found to be detrimental.

We tested some very fine samples of ground crushed stone from Europe and from different sections of the states, but found they were either too weak in actual coloring matter or too expensive.

Very early in our manufacturing experience, we dropped the facing plan and adopted the plan of coloring the entire stone. In theory the facing of stone is all right; in practice we found it undesirable. That many beautiful results may be obtained is true, both in the facing and coloring of stone, but that the facing of blocks is not practical and they are not merchantable, on account of the cost of manufacture, is also a fact, and we have found that the best results are obtained by keeping as close to the manufacture of your primary product as possible. We may at times find customers that will pay the additional price, but they are the exceptions and not the rule.

In making tests, either with coloring concrete blocks, or concrete of any character, it is our motive to make our products at a minimum cost, and market it at a fair profit.



JOHN H. FELLOWS, SCRANTON, PA., SECOND VICE PRESIDENT, National Association Cement Users.

The colored stone we are most frequently called upon to imitate in Wisconsin, is what is known as Portage Entry Red stone. This is a Northern Michigan product, and we are at a loss to know why they term it red stone, for, in fact, it is a very light shade of pink.

We have found it necessary to color our artificial stone several shades darker (when first made), than the natural product. That the stone grows lighter as the cement sets is true, and it will continue to grow lighter until it has attained a thorough initial set and has become dry. This setting and drying process, as you all know well, is governed largely by the temperature and the time of year, and the exposure to which the manufactured product is subjected. All of you who are contractors and builders, know that when you desire a deeper or darker shade of mortar coloring you are obliged to make your wet mixture many shades darker than when it is finished and the action of the lime has taken place.

We are frequently asked what proportion of coloring matter we use per stone. This is rather hard to answer, from the fact that different block manufacturers make many different sizes of stone, and that the material used in different localities, varies so much in character. We also find that different cements change the coloring more or less. However, this is not perceptible to any great degree.

In the manufacture of red stone with such sand and cement as we are in the habit of using, to

obtain a strong, deep, cherry red after final setting, we find it necessary to use from 5 to 6 or 7 pounds of the pure mineral oxide per cubic foot of concrete. In this mixture we use clean silica sand, containing no loam or clay of any character and very little organic matter. We also found that the thorough mixing of the color with the cement, before adding sand, was very necessary.

We discovered that to get good results it was absolutely imperative to have our sand thoroughly dry, and that we were obliged to mix sand, cement and color together thoroughly, much more so than in making the ordinary concrete block. We learned this early in our contracting career, when at times we found it necessary to use lamp black to produce dark mortar color. We were at a loss many times to find some liquid mixture with which the lamp black would thoroughly assimilate. At times we used vinegar, at others stale beer (and incidentally will say that this very seldom grows stale in Milwaukee). By taking very fine dry sand and mixing the lamp black with it thoroughly, we found no trouble in getting an even, dark color for our mortar.

We have been for some time endeavoring to get a green stone for an architect and customer, but as yet we have not been satisfied with the results. We did make a green stone, the body of the block being of a moss or olive shade, with streaks of livelier green coloring running through, but we have been somewhat afraid to recommend this stone to the architect, as we have not fully satisfied ourselves as to the action of this ultra-green on the cement. Our first trial was some six months ago and we are watching the product of this trial very carefully. As yet it shows no signs of disintegration, and we are now subjecting it to strong climatic changes, to see what effect the weather will have upon it.

We also found that to get an even and artistic product, it is essential to have our materials as nearly in the same condition as possible, as regards moisture and mixing, all these little details causing additional expense over the original product we made.

We are frequently asked, "Have you experimented with hydrated lime, stucco, or other fine materials in making colored concrete?" Yes, we have experimented with all of these, and, in addition, have used other fine filling materials, such as Warrenite, ground flint clay, also ground silica. I found that hydrated lime and gypsum quickened the setting qualities of the material, provided enough water was used and added from time to time, to keep the concrete from burning or falling apart, as the lime or stucco absorbs the moisture more rapidly than the cement and robs it of the moisture it must have. I have also found that if I succeeded in keeping it moist enough, after a period of six months to a year, a condition almost akin to decomposition set in, and the mass would crumble and fall apart. However, the latter condition did not occur with the ground Warrenite or fine silica, but we did find that it was necessary to add about two parts more cement to get desired results with the extremely fine material.

You ask, "Why use such fine material?" We found that in producing a beautiful colored article of artificial stone, it was necessary to have a very dense product, especially when your customer gives the stone a close and critical inspection.

We also found that we had to contend with a common enemy, that of efflorescence, or a white exudation that many times appears on concrete. We think the colored stone is more trouble than the ordinary stone, on account of its delicate and finer face, and consequently it shows more readily than on the natural stone. It has been our experience, and it is also the consensus of opinion of those who have given this matter study that this condition is largely governed by the amount of moisture given to the product, both when it is originally mixed, and later when passing through the process of curing. We hope by continued study and observation, to be able to determine the exact amount of water to use in order to prevent this trouble.

We have also observed that the temperature had considerable to do with the forming of this coating on the exterior of the stone. We notice in ordinary brick work and in natural stone, in walls where there is an excess of water deposited, this exudation passes through the wall more easily in freezing and thawing weather. While it may not appear to any extent on drier portions, it will accumulate in moist places and form considerable surface coating. However, we find by applying at intervals a solution of potash and dissolved alum, we can almost eradicate this difficulty, and

with each succeeding year it grows less and less, until it finally fails to appear at all. This is accounted for by the free lime becoming exhausted, and for this reason advise and use, as limited an amount of mortar as possible, in laying blocks in place, and protect against the filling of any of the natural air spaces with mortar or any foreign material.

Inquiry has been made as to what effect fire or extreme heat has on colored or faced stone. That the colored stone makes an excellent showing in a fire is true, but the colored faced stone does not fare so well on account of the difference in the expansion and contraction of the two bodies of concrete, causing the denser body to separate from the coarser or more porous material.

Our test of stone under hydraulic pressure shows more defects when faced, the facing spalling off. This is the case especially when any great amount of facing is used, by way of illustration, from $\frac{1}{4}$ to $\frac{3}{4}$ or $\frac{1}{2}$ inch in thickness. When but a light dusting of facing is applied to the coarser material, this separating under fire or pressure test is not very great.

As to the relative strength of colored stone, we will say that all tests as made by us, have shown to the advantage of the colored product, especially when colored with pure oxide of iron or pure manganese, the former for red stone, the latter for brown stone. Our tests show, however, that our gain was more in tensile than crushing strength, as it appears to give the product more fiber.

In explanation of our tests will say that they are all of a primitive rather than technical character, except, perhaps, that of the crushing under hydraulic pressure. All these tests were on blocks made of what we term finer grades of material, as we use this character of material to obtain a more artistic rock faced stone. We also observe with these tests that blocks containing coloring matter, especially oxide and manganese, invariably show from 8 to 11 per cent. more resistance than any uncolored stone. However, the additional tests made at six months, do not show as large a percentage of gain.

There are many features relative to the coloring of concrete for building purposes, upon which I have not touched, but will conclude for the present. Should there be any information relative to this subject of which I have any knowledge, I will gladly give it to you.

At the close of Mr. Sherer's paper the chair invited discussion of it, and all subsequent papers that might be read.

Mr. William Seafert wanted to know why gypsum should be added to concrete, as his understanding had been that it weakens it and lessens its wearing qualities. Several other points were brought up, but further discussion was postponed out of courtesy to Mr. Sherer, who at the conclusion of the reading had retired to the committee room.

In the absence of John R. Allen, Jr., Professor of Mechanical Engineering in the University of Michigan, Secretary Brown read the paper he had prepared on the testing of cement blocks.

TESTING OF CEMENT BLOCKS.

JOHN R. ALLEN, ANN ARBOR, MICH.

With the increasing use of cement as a building material, there should be devised some standard of testing the various cement products. As long as cement was in use for sustaining loads which produced only compression in the material, the testing of the finished cement product was of less importance. Recently, however, cement, especially in the form of reinforced concrete, has been used where it is subject to strains in tension as well as in compression. The strength of cement in tension being only one-fourth to one-sixth of its strength in compression, it is very important that we know what the tensile strength of the cement product is.

Ordinarily, the strength of cement only is determined and that is done by testing the strength in tension of a neat briquette. This briquette is usually carefully made in a cement testing laboratory. These tests, however, are only useful in so far as they give the strength of the cement. Take for example, concrete. The strength of concrete does not depend alone upon the strength of the cement, although this is probably the most important item. The broken stone, gravel and sand that are mixed with the cement play a very important part in the strength of the finished product. This is particularly noticeable in concrete

which has been made from gravel. If the gravel contains earthy matter, it very materially lessens the strength of the concrete, even though the cement used may be of the best quality. The use of sand which is not sharp enough or which contains some earth matter reduces very perceptibly the strength of the concrete. In order, then, to get really reliable results in testing, concrete blocks of the finished materials should be tested. These blocks should be taken if possible, from the regular factory stock and not made especially for test purposes. The method which the writer has used in testing cement blocks is as follows:

The block is placed on the platen of an ordinary testing machine and supported on knife edges 20 inches or more apart, if the length of the block will allow. The load is then applied at the center of the block equally distant from the supporting knife edges. This subjects the block to a cross breaking strain, the upper side of the block being in compression and the lower side in tension. Concrete, having a much lower strength in tension than in compression, the block gives way first on the lower or tension side. The results obtained from tests of this kind give a comparative value of the tensile strength of the materials used. After the block has been broken a piece is cut from some uninjured portion of the block and tested in compression. If possible, this compression piece should be at least 3 inches square and not over 8 inches long. Knowing the strength of the concrete in compression and the moment



A. MONSTED, MILWAUKEE, WIS., THIRD VICE PRESIDENT, National Association Cement Users.

of the cross breaking load, the approximate tensile strength of the concrete may be computed.

The points which I have endeavored to bring out in this very brief paper are two. First, in a great many cases the manufacturer does not give sufficient attention to the materials used in forming the concrete. In most cases more attention is given to the strength of the cement. This, of course, is very necessary, but as much care should be given to the securing of suitable sand and broken stone. If gravel is used in place of broken stone, it should be selected with great care as gravel concrete is much more apt to be uncertain than concrete made from broken stone.

Second, more attention should be paid to the testing of the finished product; that is, the testing of full-sized concrete blocks. The testing of sample briquettes is quite necessary and desirable, but it does not always indicate the strength of the finished product when made up in final form. In inspecting concrete work it seems to me highly desirable that samples of the concrete as mixed should be taken directly from the mixing board framed into suitable sized rectangular blocks and tested in cross breaking and in compression. These blocks would then show exactly the strength of the material used in construction.

It would seem to me highly desirable that a committee be appointed from the various associations interested in the manufacture and use of cement to consider the best methods of testing both cement and concrete and this committee should make its recommendations to the association for their adoption so that standard methods can be employed for the testing of concrete materials.

Applause followed the reading of this paper.

In the discussion which followed it, Mr. Richard L. Humphrey stated that great irregularity in the strength of cement blocks came from the amount of water in them. The character of the gravel, also had much to do with it. It was impossible he said to get a well hardened block without using sufficient water. Fine sand was not detrimental to the strength of concrete.

D. N. Harper suggested that there was little use paying much attention to testing the tensile strength of blocks, as in actual use they were not placed under conditions where that ever was of much importance.

L. C. Bonnot, of Canton, Ohio, said, as he understood it, what was wanted, was to get at the toughness of blocks, and in this connection he detailed an interesting incident which had occurred at his factory. Without knowledge of the superintendent or his assistants, the men had taken a wheelbarrow load of ground fire brick, with some cinders possibly worked up into the mixture and ground it up so that part of it was like fine dust and part like shelled corn. One third of this was mixed with two-thirds sand and gravel along with the cement. Mr. Bonnot said that the bricks made from this far exceeded in strength anything he had ever seen, and they had stood more pounding with a sledge than a "nigger-head." These blocks he said had been a little gray, but that could be overcome in coloring.

Chairman Given announced that at future sessions of the convention better order would be maintained. He made an effort to preserve order in the present instance, but it was not very successful, those in the back of the room continuing to walk about and converse.

John Jameson made some statements in reference to certain advantages in the use of ashes in the manufacture of cement blocks, which were challenged by Mr. Humphrey, who said that it depends entirely upon the character of the coal used. Most of the ashes, he said, came from bituminous coal, which required rigid inspection. They did well enough, according to Mr. Humphrey, where strength was not so much desired.

The hour was now past 5 o'clock and adjournment was taken until the evening session, when it was understood the report of the committee regarding officers and constitution and by-laws would be submitted and other papers read.

TUESDAY EVENING SESSION.

It was 8:25 o'clock when Chairman Given rapped for order. The chair announced that J. M. Furnas had been appointed sergeant-at-arms, with authority to select others to assist him in maintaining order in the Convention Hall.

Mr. Furnas and his assistants had a hard time of it, and were finally obliged to clear the hall of all who could not obtain seats, but they succeeded in maintaining order during the remainder of the convention.

The first thing on the program at the evening session was a paper on the mixture of concrete, by A. L. Goetzmann, of Chicago.

MIXTURE OF CONCRETE.

A. L. GOETZMANN, CHICAGO.

The subject of my paper is the "Mixture of Concrete," a broad subject and one upon which much has been said and written. There is a strong difference in the treatment not only of the mixture but subsequent manipulation as between the so-called wet or "slop" mixture of ordinary concrete construction and the dry mixture used in the manufacture of cement blocks, a phase of the subject little considered by writers, but of primal importance to us who are engaged in that pursuit.

I have, therefore, taken the liberty of departing from my text to the extent of considering wholly the "dry" mixture and the manufacture of concrete or cement blocks under this method, in the belief that from a discussion of this subject may be evolved a method of procedure for the block manufacturer which may be of value to the recruit entering the ranks.

The first important consideration in the making of a block, is the securing of a cement which best answers the purpose of such construction. Needless to say, no natural cement will answer the purpose. Authorities condemn puzzolan cement, so that the matter simmers down to that of Portland cement alone, as being satisfactory. In the selection of a Portland cement for blocks the question of price should not be considered. That Portland cement, which by testing gives the best results should be purchased, regardless (at least within due limits) of price. By this I do not mean an imported cement. We are making to-day in this country cements which are fully as good as the best imported.

Mr. F. W. Hagloch, C. E., gives in his "Treatise on the Manufacture of Artificial Stone and Concrete," some admirably simple rules for cement testing, and I do not feel that the subject can be better handled than by quoting him.

"It is the object of this article to give several plain and simple methods of testing cement to a certain extent to meet the requirements of cement users. Upon the receipt of a consignment of cement, take a pound sample from every tenth barrel and keep separately; divide it into three equal parts, the first for a water test; the second, for tensile strength. For the water test place the sample in a cup or saucer, add water thereto drop by drop. Should the cement absorb the water freely, it is a positive sign that it is a Portland cement. Should the cement absorb the water only to a small extent and is dark in color, it is a very low grade of Portland cement, but if light in color it is puzzolan cement made from furnace slag and entirely unfit for artificial stone purposes.

"Dark cement that absorbs water readily is usually a good cement, so far as strength is concerned, but having been burned at low temperature it is only fireproof to that degree of heat at which it was burned in its process of manufacture. For the second, or tensile strength, test, take second sample of cement, and add sand and aggregates of same proportion as you intend in making stone; mix, mold and tamp and season according to instructions for the kind of work you wish to construct. Tensile strength can best be determined with a block $1\frac{1}{4}$ inches square and six or eight inches long. When block is one month old place about two inches of one end firmly in a vise and break by applying weights to the free or extended end at a distance of four to six inches from the vice. A block $1\frac{1}{4}$ inches square made of one part cement and three of sand should carry four hundred pounds at thirty days old and about five hundred pounds when seven weeks old. This same block may be used to determine crushing strength, but as crushing strength is usually determined at an earlier date, we give the following: Take third and last sample, prepare same as second, and at the end of twenty days crush with sledge. At the same time crush a similar sized block of hard limestone in the same way and compare the strength of each in this way, the cement must be firmer than the limestone. I am aware that the average engineer ridicules this method, as it is impossible to form a table giving pounds weights required in crushing same, but remember that this same engineer would test your cement with other sand or without any sand whatever and pronounce the cement as strictly first-class without the faintest idea of the nature of the sand and aggregates your situation may prove convenient or compel you to use.

"In defense of these rude but practical methods of testing cement I wish to state that I have tested cement with modern testing appliances and I have learned that laboratory tests are splendid for advertising but for real work nothing but practical tests can be relied upon, and practical builders having had experience with cement construction approve the methods explained in this article.

"The test of the greatest practical value is the determining of the rate of setting. This is best done by measuring the time from the moment water is added until the cement paste ceases to be

fluid and plastic, which is called the "initial set" and when it has acquired a certain degree of hardening, is called the hard set.

"All work occasionally requiring rettempering of cement must know the time required of the cement used for the initial set of hardening, as rettempered cement is almost worthless after once hardened except when used as aggregates.

"Tests for time of setting should be made with sand and aggregates mixed with cement in the proportion intended to be used. Time tests with pure cement show different results. Always remember that the setting of cement is a change from a plastic condition to a solid state."

Opinions vary considerably as to sand, running from very fine to very coarse, but all agree on the one point that it should be sharp and clean. It is my own individual opinion, that question of size of the sand makes comparatively little difference, so long as it is clean, sharp and enough cement be used to properly fill the voids. I have seen blocks which tested good strength by crushing made of a mixture of crushed granite passed through a screen of forty to the inch, and also an equally good block made from the very coarsest of torpedo sand. The main consideration, as I have stated, should be that the sand be free from clay, iron rust, vegetable matter or other impurities, and as nearly as possible pure silica. The best sands are those



A. S. J. GAMMON, NORFOLK, VA., TREASURER,
National Association Cement Users.

which have been washed to remove these impurities. Care should be exercised in bank sand that there be no lime nodules, iron rust pockets or rotten stone in the bank. It is recommended often that two or three different sizes of sand are an advantage, and I quite agree with this, provided the different sizes are screened and the mixture be made of known proportions.

There seems a uniform opinion among machine men that larger material than sand is advantageous, and there is no doubt that where there is enough sand and cement to fully fill the voids that it makes a cheaper block. As to whether it adds to the strength depends entirely upon the material of which it is made. Such aggregates may vary from size to pass a one-half inch ring to that which will pass a $1\frac{1}{4}$ inch ring.

An important feature often neglected in making blocks with an aggregate is that of cleanliness. All such material should be thoroughly washed before incorporating into the concrete. A material with dust or clay on it will effectually resist the adhesion of cement.

Hard, crushed limestone, gravel, crushed granite, quartz or trap rock are recommended. Soft limestone is bad on account of its being so great an absorbent of water and all limestones are placed under the ban by some on account of the danger of disintegrating in fire.

Upon a proper and thorough mixing of the cement and sand or cement sand and aggregates depends the quality of the finished product. The best of cement and pure silica sand poorly mixed will produce a poor block. There are a number of

first class power mixers on the market, and machine mixing is always preferable to hand work as it produces a uniformly thorough mix, which the hand will not. Where hand work is necessary spread the aggregates over the body of the mixing board at a uniform depth, spread the sand evenly over this and the cement over the sand, and with shovels or hoes turn each end and back at least three times dry, smooth the mixture over with a shovel or hoe and see that the mix is of uniform color. Sprinkle and turn again, sprinkling as it is being turned three times, test for streaky appearances again. Then turn until streaks entirely disappear.

As to the proportion which should be used, this is entirely dependent upon the sizes of the sand and aggregates and can only be told by testing. Most block manufacturers recommend a given proportion as 1 to 5, 1 to 4, etc., with no knowledge of sizes of material to be used. This is not a safe proposition. An excess of cement is waste and failure will result from a deficiency. Neither can be told until one has a knowledge of materials to be used.

The perfect block is that wherein all the voids are filled and every particle of sand and aggregates is covered with cement. Thoroughly dry and screen your aggregates into two sizes. Take a given volume, say 2 cu. ft. of the coarser, mix with this all the finer which it will take without increasing the volume; mix with this all the sand which it will take without increasing the volume. Add water until it rises to the top of the mixture measure and add, by volume, cement of the volume which the water shows. Where torpedo sand (which runs from size of a pea down, and from which fine sand has been washed) may be obtained, a mixture of the coarser aggregates with the torpedo sand saves the necessity of extra screening and gives the same results.

A series of experiments demonstrated that a mixture made with torpedo sand and aggregates ranging from $\frac{1}{2}$ to $1\frac{1}{2}$ in. require proportions of 1 to $2\frac{1}{4}$ and 4. Tests with the coarser and finer materials show 1 of cement, 2 of sand, 2 of fine and $4\frac{1}{2}$ of coarser materials, and where a medium sand is the only available material a proportion of 1 to 4 has proven necessary. Of such a mixture may be made a block, every void of which is filled if sufficient cement is used so that every particle is covered, and so that voids between the granules of sand are filled with cement, making a firm bond between such granules and between the aggregates. Your block is dense, offers strong resistance to the passage of moisture, is fireproof and will stand a crushing strain equal to the very best hard limestones.

For a block composed entirely of sand and cement I should recommend a mixture of two sizes of sand, a coarse and a fine, testing the proportions required exactly as with aggregates. Do not, however, let the matter rest with such tests. In practically every block plant the sized sands and aggregates used are constant. These tests are to be used as a starter. Make up your blocks of proportion these tests indicate; after thoroughly cured and dried, break them across the stone of the aggregate instead of pulling it from its bed. If possible, subject your experimental blocks to test at some good testing laboratory and vary your proportions as such tests teach you. In this, as in every other phase of the blockmaking industry never admit yourself as knowing all about it or as being perfect. The mixtures above given will not give the fine texture of face required in many instances and facing of finer material is necessary. For this finer material of crushed granite, marble, glass or fine, clean silicious sand or crushed silica may be used, the degree of fineness depending upon the consistency desired. Such mixtures in proportion of 1 to 3 gives good strength and are sufficiently dense.

It is sometimes recommended for securing a whiter face and a more nearly waterproof one than a percentage of lime be used. This is a dangerous practice, since the deterioration in strength by the admixture of lime is very rapid and results in the hands of average workmen are at least problematical.

The amount of water necessary for the "dry" mixture most used depends upon the material. The test most often applied being to press some of it in the hand, it should stick together and leave only a small amount of moisture in the palm. The mixture should be just wet enough to cling together after tamping and not enough to stick to the face of the mold. A short experience teaches one so that the appearance of the mixture will tell when sufficiently wet.

The curing of a block is to my mind one of the most important processes in the block manufacture. We may take a block made of the best Portland cements, clean, sharp sand and a satisfactory aggregate, well mixed, thoroughly tamped and spoil it by not properly curing. The primal requisite in proper curing is water, and plenty of it. The sprinkling of a block two or three times a day is not sufficient. In my opinion the cement block of a few years hence will be cured entirely under water. The best value of cement is only secured by the admixture of water in quantities, as the cement needs it. A block should cure uniformly throughout. The inside is wet continually, with the outside wet but periodically. With the fourteen hours of night intervening between sprinkling it is reasonable to suppose that the crystallization will not take place uniformly, internal stresses will set up and the best strength of the block is lost. Cover the finished block after the first 24 hours with hay, straw, burlap, sand or any material which will hold moisture. Thoroughly soak the enveloping material with water and keep it so for at least six days.

If this method is not feasible put on a spray which will run continuously. Let them have all the water they will take up and let them have it when they want it. Cure six to eight days and dry at least ten before placing in the wall. Do the curing out of the sun and wind.

Summing up the answers of twenty cement block and machinery manufacturers to a series of questions asked them, the preponderance of opinion is as follows: Sand and cement mixture for manufacture. A fine sand preferred to the coarse. Proportion of one part cement to four of sand. Opposed to crushed limestone as aggregate. Where aggregates are used proportions of 1 to 2 to 4, and 1 to 3 to 5 equally favored. Blocks to be cured by sprinkling at least seven days. Generally opposed to use of fine crushed material for blocks, but experience limited.

The cement block industry has reached that point in its development wherein a meeting such as this and the formation of an association such as this promises to be, is essential.

The business is on its feet, the plant is well started, products selling. It is time to stop and ask ourselves a few questions. Are we doing the best we can? Are we doing all we should for the confidence of the building public are placing in us? In other words don't we need a little more education? Would it not be a good plan for me and my competitors to get together and work up a plan for advertising to acquaint the public, the architect and the engineer with the cement block instead of each endeavoring to convince him that his individual block is the best and only one?

Our duty is to educate the block maker wherever he operates and whatever block he manufactures, so that failures will not occur. Educate the public to the value of the cement block.

A cement block 12 in thick is stronger than an 18 in. rubble stone wall, yet in most of our cities we stand on the old ordinances and put in our blocks on that basis. A well made cement block with 30 per cent. voids is vastly stronger than a rubble stone wall of the same thickness, yet the alderman presents an ordinance calling for not exceeding 15 per cent. voids and we let him do it. Why? Because we have not got together, secured experts tests and forced him to take a proper position.

Let the slogan of the National Cement Users Association be:

Education for self! Education for public!

In the discussion of this paper, it was held by some that hydrated lime added to the strength of concrete, and rendered it more impervious to water. One of the members stated that he used three parts of dust of stone and one part of cement, the only objection to sand over stone, being that it was sticky and a little harder to keep the molds clean.

In response to the question, Mr. Goetzmann stated that the term "fine sand," as used in his paper, was what would pass through a 36 to 40 mesh. Such sand was a little coarser than the lake sand around Chicago.

C. D. Carlan had something to say about the cleanliness of sand. He announced that he had been experimenting with sands containing more or less loam, and in many cases the concrete made from these had given perfect satisfaction. He thought sand containing from eight to ten or fifteen per cent. of loam was better than that without it. However, Mr. Carlan said that his experiments were not complete, and that to make them so would require several seasons. He admitted

that in some cases loam was not desirable, but in bridge work, foundation or girder work, he thought it was perfectly safe to use sand containing it.

The discussion was cut short by the chairman, who announced that as the program was lengthy they would have to proceed with the reading of Mr. Humphrey's paper. This proved one of great interest, the liberal use of stereopticon views by Mr. Humphrey, making clear many points which could not have been so well impressed by other means.

Mr. Humphrey began by referring to the remarkable growth in the use of Portland cement, illustrating his remarks with a diagram showing the use of this cement in comparison with that of other cements.

One of the first views thrown on the screen was that of the first cement mill in the United States for the making of Portland cement. It was located at Rosevale, New York, and its capacity was one barrel a day.

An elaborate series of pictures of the most improved appliances for the testing of cement blocks and reinforced work, were next shown by the operator, Mr. Humphrey making explanatory remarks and answering various questions. Some of



C. S. HALL, LOUISVILLE, KY.,
Vice President of the Reinforced Concrete Division.

Mr. Humphrey's statements in regard to the great strength which had been shown by concrete structures of various classes, were greeted with applause. Further diagrams exhibited the relative strength of Roman, natural, imported Portland cement and American Portland cement, and the great superiority to the natural product clearly demonstrated. There were also pictures of concrete structures of various kinds, buildings, sewers, sea walls, etc. These had stood the test of time. Of particular interest were those views showing the reinforced structures for bridges and the like. This interesting feature on the program closed with an exhibit of a number of views showing the beautiful architectural effects that could be produced through the use of concrete. Among the pictures shown was the World's Fair building at St. Louis. Mr. Humphrey was loudly applauded as he stepped from the stage and took his seat in the audience.

At this point there was a motion to adjourn, but the sense of the convention was that it should hear the report of its committee on officers, and which was now prepared.

Mr. Smith, chairman of the committee, stepped to the platform and read the constitution.

Mr. Seafert, of the Cement and Engineering News, took some exception to the clause in the by-laws requiring that all papers to be read at subsequent meetings of the association, should be submitted to the secretary and president of the association, and not allowed to go out of their hands until they had been read on the floor of the convention.

A. Baumberger explained that the object was simply to see that no commercialism or advertising crept into the papers.

On motion the report was laid on the table for consideration at the morning session. The convention then adjourned.

WEDNESDAY MORNING SESSION.

It was 10 o'clock Wednesday morning before Chairman Given took his seat and called for order.

John J. Grandville moved that the report of the committee again be read, but the chair ruled that the report was not before the convention, on account of the action taken last night.

Mr. Fairleigh, of Louisville, asked that the report be read by sections, and if no objection was made to each section as read, that that particular section be considered as adopted. This motion was seconded and carried, and the secretary proceeded to read the report by paragraphs and sections.

Mr. Seafert objected to the clause regulating honorary membership, which provided, that a person to become an active member must be a user or producer of cement. The same privileges were accorded to an honorary as to the active members, and after considerable discussion it was finally decided that as the difference was only in name, and not in fact, there should be only one class of members, and that active. The terms relating to honorary members were therefore stricken from the constitution.

The secretary then resumed the reading and there was no objection made until Mr. Wolf moved that instead of the executive committee fixing annual dues for the compensation of the secretary and treasurer, that the committee fix them subject to the approval of the convention. This was carried and the change made.

The reading of the by-laws evoked no discussion.

Mr. Wolf said that according to previous agreement, the constitution and by-laws were adopted, but in order to remove all doubt he made a motion that they be accepted. This was unanimously carried. The constitution and by-laws as adopted are as follows:

CONSTITUTION.

ARTICLE I.

Name and Object.

The object of this society, which shall be known as the "National Association of Cement Users," shall be to disseminate information and experience upon and to promote the best methods to be employed in the various uses of cement by means of conventions, the reading and discussion of papers, upon materials of a cement nature, and their uses, by social and friendly intercourse at such conventions, the exhibition and study of materials, machinery and methods, and to circulate among its members, by means of publications, the information thus obtained.

ARTICLE II.

Membership.

SECTION 1. That the members be of one class, namely, active.

SEC. 2. A candidate for membership must be a company or person engaged in construction or maintenance of work in which cement is used, or a person who is qualified by his business relations or practical experience to co-operate in the purposes of this society, though not himself engaged in the use of cement, and may be a manufacturer of or dealer in machinery or supplies for cement users, or a designer of works in which cement shall be used.

Membership of a company in the association shall entitle such company to send as many delegates to conventions as it may desire. But one vote can be cast for such membership, and the company will in every way be treated as a single member.

SEC. 3. Each candidate for membership shall make application in writing to the secretary on the prescribed form, stating the name, age, residence, present occupation and the qualifications for membership to the society. Each application must be accompanied by a fee of five dollars (\$5.00) which shall include the dues for the current year, and which amount shall be returned to the candidate if his application is rejected.

Upon receipt of an application for membership the secretary shall submit a copy of the same to each member of the Executive Board, whose duty it shall be to vote upon such application without delay. Nine affirmative votes shall elect an applicant to membership in the society.

The secretary shall include in his report to the society the names and postoffice addresses of all persons elected to membership.

SEC. 4. Any member who shall be in arrears for more than one year's dues shall be considered as no longer a member of this society, and his name shall be discontinued from the roll by the secretary.

SEC. 5. Any member may withdraw from the society upon payment of all dues to date, and by notifying the secretary thereof in writing.

SEC. 6. Any member may for just cause, and after a fair hearing (first by the Executive Board, and with their approval by the society) be expelled from the society by a three-fourths ballot of the members present at any regular meeting, not less than twenty (20) voting. No public announcement shall be made of such action.

ARTICLE III.

Officers.

SECTION 1. The officers of the society shall consist of the President, four general Vice Presidents, a Vice President for each of the sections into which the association may be divided as herein-after provided in Section 7, an Executive Secretary and Treasurer. These officers shall constitute the Executive Board, of which the President and Executive Secretary shall be ex-officio Chairman and Secretary respectively.

SEC. 2. The terms of all officers shall be one year. The Secretary and Treasurer shall be elected annually by the Executive Board.

All officers except the Secretary and Treasurer shall be elected by ballot of the members on the second day of the annual meeting, and shall hold office until their successors are elected and qualified. Officers shall enter upon the duties of their respective positions as soon as the business of the annual meeting at which they are elected is finished. Vacancies occurring during the year, when not otherwise provided for, shall be filled by appointment of the Executive Board. The ballot for any officer may be waived by unanimous consent. (This paragraph was amended Thursday.)

The President shall not be eligible for immediate election except by unanimous vote.

SEC. 3. The duties of these officers shall be those usually pertaining to such officers.

SEC. 4. It shall be the duty of the Executive Secretary to record the proceedings and discussions at the meetings and to edit and publish the publications of the society. The Executive Secretary shall be custodian of the society's property and shall deliver the same to his successor. He shall keep a record of all donations to the society, with the name of donors and all amounts remitted, forwarding same to Treasurer at once, obtaining his receipt for same, and shall include the same in his annual report to the society. He shall give bond for the faithful performance of his duties in such sum as the Executive Board may designate.

SEC. 5. The Treasurer shall handle the funds of the society subject to the approval of the Executive Board, and shall give surety company's bond to a designated amount, the said bond being deposited with the President. The Treasurer of this society shall disburse funds only on warrant drawn by the President and countersigned by the Secretary.

SEC. 6. It shall be the duty of the Executive Board to audit the accounts of the Treasurer before each annual meeting and to determine the amount of the dues for the ensuing year, subject to the approval of the association, which amount shall be announced in the annual report at the opening session. The Executive Board shall fix the salary of the Executive Secretary and Treasurer from year to year. They shall pass upon all applications for membership as hereinbefore provided and in general shall transact the business of the Society under the constitution and by-laws, in accordance with such instructions as may be given them by the society. All proceedings of the Executive Board shall be reported to the society and shall be entered upon its records.

SEC. 7. The society shall be divided into the following sections, whose membership shall be determined by the enrollment of members of the

association in such sections as they may choose: concrete blocks and cement products, monolithic concrete, streets, sidewalks and floors, reinforced concrete, art and architecture, cement manufacture and testing of cement and cement products, machinery for cement users, fire proofing and insurance laws and ordinances. The chairman of these sections shall be elected by the sections at the first meeting provided on the program of the annual convention and shall be reported to the association for election as vice presidents of the association as provided in Sections 1 and 2.

Standing Committees of four additional members each shall be appointed by the respective chairmen and the President of the association to aid the chairman in his work.

ARTICLE IV.

Meetings.

SECTION 1. The regular meetings of the society shall be held in the month of January each year at such time as may be determined upon by the Executive Board, and at such other times as the association may determine. Each member shall be notified at least twenty (20) days in advance of the meeting. The place of each succeeding annual meeting shall be determined by the majority vote of the members present.

SEC. 2. Twenty (20) members shall constitute a quorum for the transaction of business.

SEC. 3. The order of business shall be fixed by the Executive Board.

SEC. 4. The meetings of this association shall be governed by "Robert's Rules of Order."

SEC. 5. The Executive Board may divide the association into sections for as many sessions of a convention as it deems desirable and the chairman of the standing specific committees shall aid in arranging the programs for these sections, and shall preside at the sectional meetings. The first named in the list of committees, having precedence in case two or more committees are included in one section.

ARTICLE V.

Amendments.

SECTION 1. This constitution may be amended by a two-thirds vote of the members present at any annual meeting not less than twenty (20) members voting, provided the substance of the proposed amendment be presented in writing to the President and Secretary in time for incorporation in the official call for the meeting.

BY-LAWS.

No. 1. Members shall not be permitted to give out for publication any papers to be submitted to the society at its annual meeting in advance of such meetings; and all requests for papers for such purposes shall be referred to the Secretary.

No. 2. All committees and members of the society shall be required to furnish one copy to the President and one copy to the Secretary of all reports, papers or other matters submitted to the society for its consideration, at least two days in advance of the annual meeting, for their approval.

No. 3. It shall be the duty of the President, on or before the 1st day of January each year, to divide America by States into territorial sections, and to assign one or more members of the Executive Committees to each of said sections. It shall be the duty of the members of the Executive Committees thus assigned to aid in extending the knowledge of the society in their districts, and in securing new members, and in retaining old members. Plans for improvement and promotion of the interests of the society are expected of them.

No. 4. The Secretary shall be required, at least sixty days before the holding of the annual convention, to communicate with the Local Committee having charge of the arrangements for the convention in the city in which the same is to be held, with the view of securing the exact date as to place of meeting, entertainment to be furnished, hotel and railroad rates, etc., and to print this information, together with such data relating to the business of the convention, as he may have, and distribute it.

Chairman Swift of the committee was called to the platform and proceeded to read the names of the officers chosen. Applause followed the announcement of each name.

Mr. Swift said that the committee recommended for the office of president, John P. Given; for first vice president, A. L. Goetzmann; second vice president, John F. Fellows; third vice president, H. C.

Quinn; fourth vice president, J. C. Simpson; secretary, Charles Carroll Brown; treasurer, S. J. Gammon.

G. S. Webb wanted to know what particular branch of the cement industry each officer was engaged in. It was finally ruled that each man should step forward in turn and state his business connections.

Chairman Given, of Circleville, Ohio, explained that he felt honored by the choice of the committee, but was not an office seeker. He was connected with the Pickaway Cement Block Co., and had also done local work for the Cement Machine Co.

A. L. Goetzmann, Chicago, explained that he was a civil engineer on the Chicago and Northwestern Railway. Only recently he had entered the cement block business, being connected with the Miracle Pressed Stone Co.

John H. Fellows, of Pennsylvania, had been in the cement business only about one year. He had been a real estate man all his life.

H. C. Quinn, of Georgia, was not present at the session.

B. L. Simpson, of Missouri, was engaged in the manufacture of hollow blocks in Kansas City. He had only been in the business for ten months, and he asked the privilege of withdrawing in favor of some man in the re-inforced concrete branch of the industry.

G. S. Webb moved that Mr. Watson, of New York, be substituted for Mr. Quinn, but Mr. Watson refused to accept in the absence of the gentleman from Georgia.

A. Monsted, Milwaukee, was next suggested to succeed Mr. Quinn, but he also refused on the same ground as Mr. Watson.

W. H. Hogue moved that Mr. Monsted accept Mr. Simpson's place, and upon Mr. Simpson's second, the motion was unanimously carried.

Mr. Wolf then moved that the officers be declared elected.

Mr. Harper, however, objected, and placed in nomination Richard L. Humphrey, of Philadelphia, as president.

Mr. Wolf thought Mr. Given had made possible the present convention, and that the honor was due him.

The question of adopting the committee's report was called. The ayes expressed by rising vote were 147; the nays were not counted, and the motion was declared carried.

Mr. Given then announced that a photographer would take a picture of the members of the convention on the roof of the hotel, where he was now in waiting. The session was then declared adjourned, and members crowded around the platform to congratulate Mr. Given.

WEDNESDAY AFTERNOON SESSION.

At the opening of the afternoon session the secretary announced that the members were invited to a smoker to be given by the Commercial Club, at 8 o'clock that evening. All present were cordially asked to attend.

Remarks by Doctor Holmes.

James A. Holmes, of the United States Geological Survey, was then introduced.

Dr. Holmes made a brief address in which he explained that the Geological Survey hoped to be very useful to the users of cement, and detailed a number of cement tests which had been undertaken by the government at different times and places. The purpose of the government was to bring all these tests to a common basis, showing common methods and conditions, so that the result could be depended upon. The co-operation of this new organization would accomplish much.

Dr. Holmes' remarks were applauded.

Mr. Humphrey asked for the indorsement of the convention for the work of the Geological Survey, stating that the fact of its being backed by the government with its vast resources, would make it of the utmost use.

Albert T. Gridley next read a paper on the practical work of constructing sidewalks. This paper was to have been read at the Thursday morning session, but because of Mr. Gridley's having to leave the city, it was given at this earlier date. The paper follows:

PRACTICAL WORK OF CONSTRUCTING SIDEWALKS.

ALBERT T. GRIDLEY, AURORA, IND.

The specifications uniformly given by myself for cement sidewalk-paving are:

First, excavate to a uniform depth of eleven inches below the finish grade. Second, fill with stone-coal cinders (not ashes) seven inches when well rammed to place, and when the concrete is ready dampen the cinders to prevent absorption of water from the concrete. Third, on the top of the rammed cinders fill three inches deep with cement concrete, prepared as hereinafter described. Fourth, then finish with one inch of fine cement mortar as hereinafter described. The fine cement mortar is made (all parts by bulk) of one part of Portland cement to two parts of clean sharp sand, mixed dry in a water-tight box. The concrete is made of five parts of durable stone, crushed to a three-quarter inch mesh and thoroughly screened to one part of the aforesaid fine cement mortar.

In mixing the concrete first place the stone on a large water-tight platform, then wet thoroughly, then apply the fine cement mortar (dry as yet) and mix until every particle of the stone is coated with the fine cement mortar, and apply to the work at once, thoroughly ramming to place. While the concrete is being rammed to place sufficient of the fine cement mortar should be wet enough to move freely under the trowel, immediately applied to the work, thoroughly troweled down against the concrete, "rodged-off" with a straight edge held so as to compress the mortar, and rough-finished with a plasterer's trowel. The work will then be left for the finisher, who shall first "float" the work to a uniform surface and then give it a good polish with the trowel. Gravel with no pebble larger than three-quarters of an inch may be substituted for the crushed stone before named, and where the gravel has sufficient sand of good quality mixed with it, naturally, the concrete may be made by mixing the Portland cement, one part to eight, directly with such fine gravel, first dry and then wet only enough to pack solidly and then immediately applied to the work.

Very simple in the telling and quite true, but it does not necessarily secure good work; hence we need to consider some of the requisites that can not be entered up in the written specifications. The first is a council that will stand by the engineer in his effort to secure good work. The people pay for good work and the council should see that they get it. The next requisite is a city engineer with a backbone, one sufficiently stiff enough to discharge an unfaithful workman "instantly," and to compel the contractor to realize the very important fact (to him) that good Portland cement work is of less monetary cost than poor work. Very few contractors are practical cement workers; are not in the business for their health but to make money; and are slow to realize that in this particular case (regardless of other cases) good work has a first cost less than poor work. We will consider some other like requisites further along.

The selection of the materials should be left entirely to the engineer. As to the Portland cement one can only say that they are all like the toper's whiskeys, "good." I have found no such difference as is claimed by the various makers and by many cement users. Different "brands" work differently, but good results can be had from any. I have found it best to give the workmen that brand with which they best like to work.

As to stone or gravel, I can say only that it must be durable. Many kinds of stone "air slack" and dissolve out of the work. To say "clean, sharp sand" is sufficient, but some may not know just what is meant by "sharp." It means a sand that shows acute angles under the microscope and so hard that when rubbed between the thumb and fingers none crumbles and no dust forms. It should give a good, sharp, clean ring when handled with a shovel. But let me give you my test. Mix your cement and sand in such proportions as to bring out a plainly discernible "slate-green" color. If you can not develop that color, get some sand with which it can be done. With that you are assured of good work, without it you are not. It is the opinion of your writer that more defective work is due to a poor quality of sand than to all other causes combined. Too much insistence can not be made that all the material must be clean. The entire virtue of cement is in its adhesiveness. If the materials are not clean the adhesion will not take place. This particular applies to the water as well as to other materials.

Some critic may here say that he has had good work from sand which showed considerable color on the hand and that made the water yellow when thrown into it. Quite true, and quite untrue. The result is apparently, in many instances, better work. But it is only in appearance. The clay which makes this color is not calcined and sooner or later dissolves out of the work with corresponding loss of strength. Many years ago masons and plasterers learned that with a clean, sharp sand and well burned lime, as good results were not had with clean water as with water to which some yellow clay was added and well stirred in before mixing with the lime and sand. It was this very mixture which led to the discovery or invention of Portland cement. These same old-time masons knew that the clay would dissolve out of the work where the work was exposed to the rains. To obviate the difficulty they took the same old Thames mud and burned lime and mixed them, burned them again together, ground them and used them as they had the lime. The work thus produced so much resembled the natural Portland stone that this mixture was, in turn, called Portland cement. The name yet holds good and the principle yet remains that you can not make durable work out of unburned clay.

The substructure of the sidewalk may be of the natural surface, crushed stone, gravel or cinders. The essential point is to secure certain drainage. If that can not be had in any other way drain tile must be used. Your writer prefers cinders because they part with the water more rapidly than do other materials, and with them there is no tendency to the formation of "frost-nails" which is the prime cause of cracking of the work. Just here I want to enter a protest against the use of deep-tongued tools in finishing between the blocks. The usual specifications for dividing the work into blocks are: divide the concrete into blocks of not more than 25 square feet area with a sand joint not more than one-half inch wide. Also divide the finish coat into like blocks with the joints exactly over the sand joints in the concrete with a trowel-cut only and finish with a marking-tool having a tongue not more than one-fourth inch deep nor more than one-sixteenth inch thick and joined to the plate with a radius of not more than one-eighth inch. Yet I frequently find men using a marker having a tongue an inch deep and a quarter of an inch thick. The theory for this is that the deep cutting prevents cracking beyond the "cut." It does not; hence the theory is not correct. The "trowel-cut" makes a permanent division in the topcoat. The shallow marker presses the edges close together, but they do not unite, and so prevents the entrance of water into the joint; hence there is no expansion to push the blocks apart. Great care should be had that none of the dry sand used in making the "sand-joint" in the concrete is permitted to fall upon the top of the concrete. If it does it will prevent the "cap" or fine cement mortar, from uniting with the concrete and the "cap" will be loose and be liable to crack off to that extent.

Among the workmen are some requisites that can not be written in the specifications. Oftener than otherwise among the common laborers will be found a better "stripper" than among expert carpenters. It is just a "knack" in setting the side-rails for pavements and backs, fronts and divisions for curbs and gutters, that some men have and others do not. Again, every mason and plasterer knows that there is much in the "tempering" of the mortar and a good mason or plasterer demands the services of some one whom he considers to be an expert at that work. It is all in the "look" and the "feel," and some men have the "knack" for it and others do not. Usually it is best to employ an expert "finisher," but, often, among the day laborers will be found a man who will readily get the "knack" of knowing just when to apply the float and just how to apply the trowel to get a fine finish upon the work. Here is where the city engineer gets in his fine work. It is being able (not to do the work himself, but) to select, readily, the men who will do the work. Men do best that which they like best. The engineer should be able to detect that in a man which he likes best, and so can do best, and thus make his own work easy and sure.

To councilmen I would say, "cut out" your superintendents. Usually political favorites, rarely with any practical knowledge and wholly without any legal power, they are more a hindrance than a benefit to the work. Make your engineer responsible for good work. If he needs supervision assistants, let him select them and make him responsible for their acts.

Last, but not least, I want to say something about the "tamping" and "ramming." Both the tensile and the compressing strength of the work are largely dependent upon this one thing and everybody can not do it. The rammer is usually an iron plate with an upright handle. If this falls but a very little diagonally it stirs up the work instead of compacting it. Among any ten common laborers will be found at least one who will be found to have a "knack" at dropping the "rammer" square upon the work. He who does this will have no "jar" from the handle to his arms and the dread of the tool, which most laborers have will entirely disappear. Such a man will do twice the work of others and do it well where the others do it ill, and do it satisfactorily to himself.

Gentlemen, my story is told, but I want to say something about the future of Portland cement. In crushed and screened "blue hole" oolitic Indiana limestone, granite, marble and other fine building stones, you have materials, which combined with Portland cement and suitable sands, will produce better and finer effects in both internal and external architecture, than are produced by the natural stones, and at much less cost. These artificial stones will receive as fine a polish as the natural stones, if you will but study how it is done.

And now a word about repairs. Where Portland cement work is broken, remove the broken parts and cut away to a clean surface. Then dampen this clean surface and cover very lightly with dry cement, and immediately apply the new material which is to take the place of the part removed, and finish as at first. If a part of the work becomes worn and prevents a coarse, rough surface, it is because the finish coat was not properly "tempered" in the making of the work. The best remedy is to take equal parts of unslacked lime and Portland cement, and, within a spell of fine weather, sprinkle lightly all over the worn places, and leave it to be kicked about by the feet of passers-by until after a rain. Much surer effects will be attained by making several applications than by applying all at once.

Mr. Gridley was applauded at the close.

L. F. Perdue wanted to know why excavations of eleven inches should be made.

Mr. Gridley replied that in some soils they might not be necessary, but there must be some way to carry off the water and prevent freezing and forcing up at the edges of the concrete, allowing the pavement to fall in the center.

Mr. Perdue gave his experience. He believed in some foundation when necessary; but the best pavements according to his idea, were built directly on the ground.

Mr. Mayer said that he had often traced cracks in sidewalks back to telegraph or trolley wire poles, which by their jar started the break. It was suggested that this could be overcome by not building up to the poles.

C. P. Widdicombe wanted information as to how he could prevent sidewalks from being too smooth.

Mr. Gridley suggested that he brush them over with a light brush to roughen them before they had hardened.

Mr. E. S. Larned said that where a foundation was necessary, he did not cut the trenches to the edges of the concrete where cinders or gravel was used.

At the close of the discussion of this paper G. B. Kierwan, of St. Louis, read a paper on the water proofing of concrete blocks.

THE WATERPROOFING OF CONCRETE BLOCK.

BY G. B. KIERWAN, ST. LOUIS.

Our ancestors progressed from the Stone Age to the Iron Age; we seem to be passing from the steel age to the cement, stone or concrete age; we tread on concrete walks, travel on concrete subways, over concrete bridges, live and work in concrete buildings, store our grain in concrete elevators, draw our water from concrete reservoirs and cisterns, sanitize our cities with concrete sewers and are finally buried in concrete cases, deposited in concrete tombs, and our numerous virtues are inscribed on concrete.

That the cement block has made enormous strides in a short time is due to the fact that it is strong and cheap and has great architectural adaptability, but whether this progress is permanent or not depends upon the makers of the blocks, on whom it is incumbent to produce a block that not only combines strength with beauty but is efficient in every particular.

Dampness in buildings is one of the most potent sources of ill health, and if concrete block build-

ings are more damp than those of brick, stone or wood, then the block business will correspondingly suffer. It is not plain that either brick or stone is impervious to moisture, consequently architects and builders take special precautions to exclude dampness, but most of the makers of concrete blocks assert that the hollow space in the blocks attracts, by the process of capillarity, such moisture as is absorbed by the block, or the air in the space dries the moisture before it can penetrate the interior of the building. Consequently both architects and builder depends entirely on the hollow space to exclude moisture.

The reasons why a concrete block building is damp, are:

First—Concrete, whether rich in cement or compressed by hydraulic pressure, will absorb more or less moisture. The porosity is not destroyed but merely diminished.

Second—The hollow space, not being continuous, does not prove a barrier to the penetration of moisture, as it will travel through the solid portions of the block. With the exception of those blocks in which there are double air spaces the hollow space does not entirely isolate the inner from the outer face of the block. Double air spaces accomplish this, but a single air space in order to do so must run from end to end, which means practically erecting two walls and creating a continuous air space between them. This system of erecting parallel walls has been for the most part abandoned, because a given amount of material will not produce as strong a building, as when it is used in the form of hollow blocks. The object of creating a hollow space is to damp proof and insulate, but a single air space only decreases the amount of dampness and does not exclude it absolutely.

Third—Air in the hollow space is not dry air, but, on the contrary, becomes damp in a short time, thus destroying whatever efficacy the air space might have.

Dampness can result from three different causes, one of which is from poor insulation, resulting in air higher in temperature striking a wall much lower in temperature and condensing it. For instance, the air space created by furring and lathing in a brick building is intended to serve two distinct purposes:

It isolates the plastered wall from the outside wall, thus keeping the plastered wall free from dampness.

The theory is that dry air confined will not conduct heat or cold. On the other hand, if the air is damp it will conduct readily.

From this it must be deduced that the single air space in a block is of little value as an insulator because it fails to completely exclude moisture. The double air space in a cement block may prevent dampness resulting from direct penetration, but as an insulator it fails because the air contained in the spaces becomes damp and consequently conducts heavily.

Fourth—If moisture is attracted to the hollow space by the process of capillarity then damp air is the result.

Dampness in buildings results either from direct penetration of moisture through porous bodies, resulting from rain beating on the outer face of the wall, or from the wall's absorbing atmospheric moisture, or from warm air striking the cold wall and condensing. The reason for dampness caused by direct penetration to moisture, is obvious, and that for condensation has already been explained, but why buildings situated on high ground and with apparently dry weather should be damp, is not so generally understood.

Water is always present in the atmosphere. Water is soluble in air and when dissolved in it is as invisible as the air itself. When the proportion of water is greater than the air can dissolve the atmosphere is said to be damp; when the air can dissolve all the water the atmosphere is called dry, notwithstanding that it still contains water. The proportion of water soluble in air increases with the temperature of the air. When air nearly saturated with water is cooled some of the water is precipitated. During the heat of a warm day the atmosphere may be clear, bright and apparently dry, although it may contain as much water as the air is capable of dissolving at that period.

Whenever such air is cooled, as for instance, at sunset, it becomes unable to hold as much water as during the heat of day and some of the water is discharged, becoming dew, mist, or even rain, according to the degree and rapidity of the cooling process.

To demonstrate that moisture is present in air and that dampness is often due to walls absorbing

this moisture, take a clean, dry glass bottle and seal it hermetically. Put it in ice and leave it there for about half an hour. Then take it out, wipe off the outside and examine it. The inside will be covered with dew, which, if the experiment has been successful will form little streams of water and trickle down the side. By means of a freezing mixture of ice and salt applied to the outside of the bottle the dew will be transformed into frost. Take the bottle away from the ice, the frozen moisture will thaw quickly and the water will slowly disappear until the bottle has become empty and apparently dry, as at first. The bottle was hermetically sealed so that nothing could get in or out, yet the water that appeared in it vanished again. All that was done to produce this result was to change the temperature.

This is what takes place on a small scale in the bottle. It is closed but it contains atmospheric air, which contains water. On reducing the temperature some of the water is released and when the temperature is reduced further it freezes. On exposing the bottle to the surrounding temperature the ice within it first cools the air near the outside and precipitates dew on the outside of the bottle. As the air inside rises in temperature the ice changes to water and then evaporates until the bottle appears as empty as at first. In a similar manner, dry walls become damp and damp walls become wet, small streams of water often trickling down the inside of the building.

F. W. Hagloch, C. E., has paid considerable attention to cement block construction, and in one of his many tests he found the water absorbed in five hours by six different blocks amounted to so much that the penetration of moisture to the inner face of the block was a certainty. He concluded from this test that some method of waterproofing was a necessity.

The tests made by Mr. Hagloch developed the fact that the hollow space in the block merely minimizes the amount of dampness without excluding it absolutely. In his opinion, making impervious blocks by the addition of sand is almost an impossibility for many reasons, one of which is, to quote him verbatim: "No positive formula can be given owing to the different sands and aggregates and different fineness of cements requiring different proportions," from which we must conclude that ideal conditions are required which are almost impossible to obtain.

There is only one way to insulate and damp-proof a building constructed of concrete blocks, and that is to make the blocks impervious to moisture. If this is done not only is moisture prevented from entering a block but the air contained in the cells of the block is protected against pressure from the outside. Thus the block is constantly filled with air confined in small cells, which is acknowledged by all authorities to be the best non-conductor possible to obtain; consequently, the insulating power of cement and sand mixed in the form of concrete is maintained at its highest point of efficiency, and, assisted by an air space containing bone dry air, a building easily kept cool in summer and warm in winter must result.

The absorption of moisture by stone, brick, cement or concrete ultimately results in decay or disintegration so that if the blocks can be made impervious the mechanical action of water constantly rubbing against the particles of concrete and loosening them, thereby disintegrating the mass, or the action of chemically charged moisture which is responsible for decay, is entirely prevented.

If blocks could be trowelled and finished off in a similar manner to sidewalks there would be practically no penetration, but as this is impracticable in all cases where the object is to produce an imitation of rough-hewn stone, some other means must be adopted. The simplest method would seem to be to apply a waterproofing liquid that will fill the pores of the stone and render them impervious to moisture. At the same time it must neither injure the ingredients of the block or discolor the surface. It must not be affected by frost or drawn to the surface and evaporated by the heat of the sun. Various chemical compounds have been recommended and are being used by the makers of blocks, but in applying a water-proof coat care must be taken not to effect the strength or otherwise injure the block. The only material that is insoluble in water, that will resist chemical action and at the same time will not injuriously affect concrete is paraffine. The chief drawback to paraffine is that it requires mechanical means to apply which would so increase the expense of block-making as to be practically prohibited. If a vehicle can be found that will combine with paraffine

so that the mixture can be applied with mechanical means, that is simply with a brush like ordinary paint, in my opinion then, the problem of making concrete blocks absolutely impervious to water will be solved.

When Mr. Kirwan had concluded the secretary explained that W. H. Findlay, assistant engineer of the Chicago Northwestern Railroad Co., was to have read a paper on the same subject, but that he could not be present and that the secretary would read the paper, which he did.

WATERPROOFING CONCRETE STRUCTURES.

W. H. FINLEY, CHICAGO.

Ever since concrete has entered so largely into the field of construction as a substitute for stone masonry there has been more or less discussion as to its permeability and various expedients have been resorted to to prevent the seepage of water through the material. This refers more particularly to the large masses of concrete built for engineering structure. I am aware that there has been more or less success in making concrete impervious to the action of water by various means, but do not think that any of them have given such satisfaction as to become generally used.

It is a question whether the addition of alum, soap and other extraneous material does not affect the lasting qualities of the concrete. If the announcement of the "Star-Settin" Portland Cement Works that they are now manufacturing, according to a process invented in Germany, a waterproof cement which will become impervious to water, will resist the action of frost, heat, hot water, sea water and diluted acids, is borne out, the question of waterproofing concrete is settled for all time. However, concrete, as usually built in many engineering structures, is not impermeable to the action of water, and some method of waterproofing the same, I think, is vitally necessary. That this is appreciated by engineers is clearly evidenced by the amount of water-proofing that is now being done on concrete arches, abutments, retaining walls, etc.

The writer has recommended for years the necessity of water-proofing both stone masonry and concrete structures where there was any danger of seepage of water, and believes that such a precaution will extend the life of the structure.

A recent examination of concrete abutments, retaining walls, etc., built in Chicago some years ago, disclosed the fact that water was seeping through the mass in several places, particularly along the parting planes where the work was not carried on continuously. This condition is frequently observed in concrete construction, and I think could be entirely prevented if the back of the structure was thoroughly waterproofed with asphalt.

Some years ago I had occasion to repair some masonry arches built in 1862 that were rapidly disintegrating owing to the filtration of water. These arches were uncovered, the damaged stone replaced, and the extrados of the arch was plastered with cement concrete and then thoroughly waterproofed with asphalt. Time has demonstrated that this work was very successful. I have since uncovered a number of arches that were leaking and found that the concrete backing did not prevent the entrance of water. These were cleaned off and waterproofed with asphalt in each case. It is now the practice on a number of railroads to thoroughly waterproof all arches, abutments, retaining walls, etc.

The method generally employed is to use as a first coat asphalt cut with naphtha, to be applied as a paint to the concrete after the mass is perfectly dry, and then cover the surface with an asphaltic mastic composed of one part of asphalt to four of sand; this to be smoothed off with hot smoothing irons and thoroughly tamped and pressed into place. If the filling over the arch is ordinary gravel or dirt no other work will be necessary, but if it is filled with broken stone or stone chips it is better to cover the surface of the asphalt with washed roofing gravel so that the broken stone will not cut or damage the asphalt surface.

There are various other methods employed in waterproofing concrete surfaces with asphalt, such as the use of burlap or other fabric imbedded in the asphalt coating. It is very difficult to make hot asphalt adhere to a concrete surface, however dry the same may be, unless it is heated by artificial means. Hot asphalt laid on ordinary dry concrete will not adhere and can be rolled up like a blanket after it has cooled. The writer has had some success in applying hot asphalt direct to concrete surfaces after the same had been dried and heated with hot sand, but much prefers the use of

the asphalt cut with naphtha applied as a painting or swabbing coat. The cost of this work with present prices of first-class asphalt will range from 10 to 20 cents per square foot, depending upon local conditions. It does not require any special expert knowledge of its application. After a brief coaching the forces as usually employed can produce a satisfactory job.

It might be well at this time to say something about the quality of asphalt to be used for waterproofing purposes. In the past few years there has been a large development of asphalt for this purpose and it is now possible to get, at a reasonable price, a pure asphalt that will not flow under a temperature of 212 degrees, and not become brittle, when spread thin on glass, at 15 degrees below zero. Also it will resist the action of acids and alkalis.

The following specification is one that I have used with good results in waterproofing works:

Asphalt shall be used which is of the best grade, free from coal tar or any of its products, and which will not volatilize more than one-half of 1 per cent. under a temperature of 300 degrees F. for 10 hours. It must not be affected by a 20 per cent. solution of ammonia, a 35 per cent. solution of hydrochloric acid, a 25 per cent. solution of sulphuric acid, nor by a saturated solution of sodium chloride.

For metallic structures exposed to the direct rays of the sun, the asphalt should not flow under 212 degrees F. and should not become brittle at 15 degrees F. below 0 degree when spread thin on glass. For structures underground, such as masonry, arches, abutments, retaining walls, foundation walls of buildings, subways, etc., a flow point of 185 degrees F. and a brittle point of 0 degree F. will be required. The asphalt covering must not perceptibly indent, when at a temperature of 130 degrees F. under a load at the rate of 15 pounds per square inch; and it must remain ductile at a temperature of 15 degrees F. below zero on metal structures, and at 0 degree F. on masonry structure under ground.

Before applying asphalt to a metal surface, it is imperative that the metal be cleaned of all rust, loose scale and dirt; and if previously coated with oil, this must be burned off with benzine or by other suitable means. The metal surface must be warm to cause the asphalt to stick to it, and the warming is best accomplished by covering it with heated sand, which should be swept back as the hot asphalt is applied. When waterproofing masonry structures, if the surface can not be made dry and warm, it should be first coated with an asphalt paint made of asphalt reduced with naphtha. This is particularly necessary for vertical surfaces.

The asphalt should be heated in a suitable kettle to a temperature not exceeding 450 degrees F. If this is exceeded it may result in "pitching" the asphalt. Before the "pitching" point is reached, the vapor from the kettle is of a bluish tinge which changes to a yellowish tinge after the danger point is passed. If this occurs the material should be tempered by the addition of fresh asphalt. The asphalt has been cooked sufficiently when a piece of wood can be put in and withdrawn without the asphalt clinging to it.

The first coat should consist of a thin layer poured from buckets on the prepared surface and thoroughly mopped over. The second coat should consist of a mixture of clean sand or screenings, free from earthy admixtures, previously heated and dried, and asphalt, in the proportion of 1 of asphalt to 3 or 4 of sand or screenings by volume; this is to be thoroughly mixed in the kettle and then spread out on the surface with warm smoothing irons, such as are used in laying asphalt streets. The finishing coat should consist of pure hot asphalt spread thinly and evenly over the entire surface, and then sprinkled with washed roofing gravel, torpedo sand, or stone screenings, to harden the top. The thickness of the coating will depend on the character of the work and may vary from $\frac{3}{4}$ in. to 2 in. in thickness.

Where a quantity of asphaltic concrete is required, such as in trough floors on bridges, a concrete should be made in the proportion of one part asphalt, 2 parts sand and 3 parts limestone screenings, thoroughly mixed and rammed into place with tamping irons on the first coat of pure asphalt with which the metal was originally covered. At all drainage holes large sized stone should be carefully placed by hand to insure perfect drainage.

It may not be out of place in discussing the question of water-proofing, to call attention to the necessity for provisions for drainage in all concrete and masonry structures. This has not been given as much attention as it should receive.

Whether water-proofing material is applied or not, the question of thoroughly draining the structure is of the greatest importance.

In ordinary building construction sufficient attention has not been given by architects and builders to the proper water-proofing of their foundation walls. I have observed recently a number of buildings in process of construction where the excavation for the cellar and lower foundations were made in a clayey material and concrete foundation walls put in without making any attempt to apply a water-proofing or damp-proof coating to the wall or provide suitable drainage to carry off the ground water.

In this particular we are falling away behind even the early Roman architects and builders. In all the examples of their work it is evident they gave the greatest consideration in their construction to proper methods for keeping their foundation walls dry, and we can not do better to-day in such matters than follow the advice of the great architect Vitruvius who, writing about 25 years B. C., described methods of water-proofing and ventilating foundation walls that compare favorably with the best methods used to-day, excepting that we may have better materials for water-proofing than were known at that time.

Asphalt, I believe, makes the best damp-proof or water-proofing material that can be used in foundation walls and for all structures where such provision is necessary. It has been used from the earliest times for the purpose of protecting material from air and water, and we have examples of it in our museums where the mummy cases were sealed with this material more than 3,000 years ago.

I think the various makes of hollow concrete block offer a good field for the application of water-proofing. It is in line with the ideas of early Romans in building hollow walls to take care of the question of dampness. I am of the opinion that these blocks laid up in asphalt, and the surface next to the ground thoroughly coated with the same material make an ideal damp-proof wall.

I have found that the water-proofing qualities of asphalt, even when used under water pressure, are all that could be desired. When repairing a stone reservoir recently the following method was used: A single course of brick was laid up in front of the wall, this brick being heated until the moisture was driven out, and then soaked in hot asphalt and laid in place, the space between the brick and the stone being filled with an asphaltic concrete of limestone, screenings and asphalt in the proportion of about 1 to 4. These brick were anchored into the stone wall at intervals and the work has given very good satisfaction.

Discussion of both these papers was taken up together.

Mr. W. E. Ellenberger asked if it were possible to make hollow blocks that were absolutely impervious to moisture.

Mr. Noyes F. Palmer described a building in Philadelphia which he said was absolutely water proof. The blocks for this building had been made with alum water and water in which castile soap had been dissolved. The dust that had blown from trap rock, was used.

Mr. A. C. Horn said that this was an old process known as the Sylvester process, and added that any one could satisfy themselves as to whether it was a satisfactory process or not, by taking a look at any building which had been constructed that way. His remarks indicated that he did not think much of it.

The convention adjourned until 10 o'clock Thursday morning.

THURSDAY MORNING'S SESSION.

Thursday, President Given opened the morning session with the announcement that the executive board had chosen Charles Carroll Brown, of Indianapolis, Ind., secretary; S. J. Gammon, of Norfolk, Va., treasurer.

Mr. Given asked that the first vice president, Mr. Goetzmann, take the chair, as he had an announcement of importance to make.

Mr. Goetzmann came forward and Mr. Given stepped down from the platform and addressed the convention.

Mr. Given Nominates His Successor.

He expressed his pride at the progress the association had made thus far. The proceedings were eminently satisfactory. Mr. Given said that he deeply appreciated the honor that had been conferred upon him in making him temporary chairman, and later permanent presi-

dent. It was impossible, he said, to express his thanks. In looking over the constitution and by-laws adopted by the association, he had noted that officers enter upon their duties as soon as the business of the annual meeting for which they were elected, is finished. Mr. Given asked that at the close of this session some one else be chosen as president, allowing his term to expire at that time. Honors, he explained, were appreciated by all intelligent men, and he thought it the best plan to pass them around.

"We have in our midst," said Mr. Given, "a man whom we should be proud to honor; prominent in all works connected with the uses of cement, independent, and a credit to any organization with which he may be connected. I refer to Richard L. Humphrey, and would ask that he be named president, his duties to begin at the close of the present meeting. I thank you again for the honor conferred upon me, and ask that you consider my proposition."

Mr. Seafert favored such action and reviewed Mr. Humphrey's career.

The question arose on the floor as to whether a vacancy existed, Mr. Given not having tendered his resignation.

Mr. William Fortune said that Mr. Given had shown great breadth of mind and magnanimity of spirit in the position he had taken. Mr. Fortune paid a warm tribute to Mr. Given, and at the close explained that as it was his wish to retire, he thought it would be best for the convention to accept the situation, and he therefore seconded the motion made by Mr. Given.

The convention finally acted favorably upon Mr. Given's proposition, naming Mr. Humphrey as the second president of the association.

Mr. Given expressed his thanks and resumed the chair.

Colonel R. Cromer offered an amendment to the constitution providing that in addition to the four general vice presidents, a vice president from each of the different cement industries be named. He said that about sixty per cent. of those present were workers in cement. By this change in the by-laws, each part of the business will be given a fair representation. The vice president representing each branch, should, with two others, constitute a committee on that particular branch.

Mr. Fairleigh thought this a very important matter, and that it should be referred to the executive committee to be reported upon at the next annual meeting.

Mr. Harper amended Mr. Fairleigh's motion so that the executive committee should take it up at once. This was carried.

Mr. Given here explained that the paper on cement posts by J. A. Mitchell, of Goshen, had been unintentionally mislaid by the stenographer to whom it had been given to copy, and that he was, therefore, compelled to read the paper by title and order it printed in the minutes of the meeting.

CEMENT POSTS.

BY J. A. MITCHELL, GOSHEN, IND.

In presenting this paper on the subject of cement posts, I speak from a practical experience of over three years in the manufacture of them.

The scarcity of timber suitable for fence posts has brought the question of using cement for posts to the front. In treating upon the subject I shall put it under the following heads: The practicability of cement posts, mixing material, reinforcing, fasteners for fence; molds, age before using; cost of manufacture; effect of cold or heat on the posts and test of strength.

It has been demonstrated in a number of localities that cement fence posts are a success, when properly constructed. I have seen cement posts that have been in the ground for over ten years and they were better than when first set. One hitching post I know of that has been in constant use for twelve years that is still perfectly sound. I have made thousands of cement posts, some of which have been set in the ground for over three years. I have never known a post to be broken after it was once set in the line of fence. After three years of experimenting with and manufacturing cement posts I am convinced that they are the coming posts for fence purposes. They are practically indestructible as regards the elements.

Regarding the mixing of material for posts, I will say that I have used both the dry and the wet or slush mixture, and have obtained good results

from both, but I must say that I have made the neatest and the best posts with the dry mixture, though it is a much slower process.

As to the proportion of cement and sand used in making posts one must be governed by the quality of sand used. I have used one to three, one to four, and even one to five with varying results. There is such a thing as making a mixture too strong of cement. I tried half sand and half cement and the posts made in that way were an entire failure from some cause that I could not account for.

A very essential feature in the manufacture of cement posts is the reinforcing. It is next to impossible to make a post without some sort of reinforcement and the success of your posts depends greatly upon the kind of reinforcement used. It is a mistaken idea that almost anything will answer for the interior of the post. Wood has been tried but it positively will not do for the strengthening of cement posts. I have seen it tried at different times in the past seven years but it has always resulted in a failure. Metal is the only practical strengthener for reinforcing cement posts and care must be used in selecting the proper kind of metal. Galvanized metal should be used—round in shape. It is very hard to get a good post when flat metal is used. I have tried all kinds and find the round iron the best. Corrugated rods are very good.

This is the one thing that has puzzled the manufacturer or would-be manufacturer of cement posts. Holes through the post was the first device for fastening the fence, but there are two objections to the use of holes in the post. One is that the holes weaken the post and the other is it takes too long to make them. The time required in putting ten holes in each post will amount to the time required to make the post. Eyes made of wire, hooks and staples imbedded in the cement have been tried for fasteners, but I find that the best fastener is the one that fastens the fence and post firmly and rigidly together. If the fence and post are so fastened that it is impossible to move the post with the line of fence it is a great benefit to the post, as with such a fastener it is almost impossible to break the post with the line of fence.

From the experience I have had, wooden molds are the best for forming the cement post. They are light, easily and cheaply made and last a long time if kept dry or under cover. The double mold, or two posts to the mold, I have found best and the mold should be collapsible so that the post can be removed from mold in from 24 to 48 hours after making. I have molds that have been in use for three years and they are good yet. Molds can not safely be removed from the post until the concrete is set. The shape of the post renders it very easy and liable to crack if handled before the cement sets. Iron molds are too heavy to handle and too expensive.

From practical tests I find that posts can be safely set in line of fence at the age of 30 days, yet 60 days is better and it would be still better if the post could be kept six months before setting in line of fence, for they would then be thoroughly cured, seasoned and hard, although I have set posts that were only two weeks old with good results, but it is very risky setting and shipping them at that age. Posts are called thoroughly cured in sixty days, but I find them at the age of one year three times as strong as at 60 days.

Posts can be manufactured at a cost of from 11 to 12½ cents each, counting cement at \$1.50 per barrel, gravel at 40 cents per yard, metal at 2½ cents per pound and labor at \$1.50 per day. Some persons who are selling farm rights represent that posts can be made for seven cents when the cement alone costs five to six cents. Two men will make one hundred posts per day, while three good men can make 175 to 200 per day. The more men that are used working together, the less the cost per post for labor.

It has been a question with some persons as to whether a cement post would stand freezing weather, they contending that a rainy, sleety time, followed by a hard freeze, would burst the post on account of its taking up so much water; but this is a mistaken idea. I have put the posts to all kinds of tests, and exposed them in every way to all kinds of weather. I have set them in the ground where the water would stand and have had it freeze to a depth of two feet or more where this water stood without affecting the post in the least. I have left them lying on the ground singly and in stacks all winter; have known an inch and a half of ice to freeze on top of a pile of posts that I wanted to ship and found them in the best condition. These tests of cold were made in Michigan

where they had ice last winter two feet thick. I shipped three carloads in January, 1904, that the workmen had to shovel over two feet of snow off and then cut at least an inch of ice from the top layers. In this lot of 1,600 posts there were eight damaged posts, and they were not damaged so much but what they were used and we were allowed half price for them. The cold weather has no effect on them whatever, neither does the heat. I burned some pieces of a broken post in my stove last winter all winter, using them for fire brick, and they were as good in the spring as they were when I put them in the stove. One great advantage of cement over the wood post is that there is no danger of burning the post if the fence row burns out, as is so often the case along railroads.

I have tested the strength of the post in several different ways. Have tested them in the line of fence, the end posts with a pull of at least five tons without breaking. Have had them tested with the best wire fence stretchers that are used with 55-inch fence of hard steel galvanized wire, and never had a break. I have tried them with something under each end and a dead weight of over 800 pounds between the supports without breaking. Have put them to a scale test by using one as a lever with the fulcrum on the platform of scales. The scale beam showed a weight of over 700 pounds without breaking. They stand shipping splendidly and they can be hauled any distance over any kind of road.

In conclusion I will say that after an experience of over three years in the manufacture of cement posts, that they are a success, and they can be manufactured and sold at a good profit and at a price lower than is asked for a good wood post. The main thing is in knowing how to make them. I have no trouble in selling all the posts that I could get made and at a good price, retailing them at 30 and 35 cents for the small or line posts and \$3.00 each for the end and corner posts.

A paper on the quality of sand by James C. Hain, Engineer of Masonry and Construction, Chicago, Milwaukee and St. Paul Railroad, was then read by the secretary, which will be published later.

Mr. Given, after the reading of Mr. Hain's paper, suggested that to expedite matters, the various sections of the industry get together and select the men wanted on the different committees.

The morning session then came to an end.

THURSDAY AFTERNOON SESSION.

President Given's gavel fell at 2:10 o'clock with a small attendance in the hall, many of the members having already started for their respective homes.

The secretary read the report of the executive board, covering the changes in the constitution in regard to the appointing of a vice president for each branch of the industry.

Colonel R. Cromer moved its adoption and the motion was unanimously carried.

President Given then called on the different industries to name those whom they had chosen for vice presidents.

The announcements were as follows. B. S. Simpson, of Kansas City, cement blocks; W. W. Schouler, street sidewalks; C. S. Hall, Louisville, re-inforced concrete; Charles D. Watson, art and architecture; E. D. Boyer, cement manufacture and testing of cement; W. W. Benson, machinery for cement users. It was moved and seconded that these officers be elected. The motion carried unanimously.

Mr. Watson moved that the association extend to the Commercial Club and the city of Indianapolis its thanks for the cordial welcome its members had received and the hospitality extended to them. This unanimously carried.

Mr. Brown's motion that the question box be referred to different experts for answer was favorably acted upon.

The matter of the next meeting place then came up. The fight was between Milwaukee, Chicago and Columbus, Ohio.

President Given presented the invitation of Columbus, promising a suitable auditorium and pleasant features. Columbus, he said, was central. He read a telegram from the secretary of the Board of Trade, asking for the next convention.

Mr. R. B. Watrous asked the association to come to Milwaukee, which he said was a center for cement users, and had plenty of good hotels and a suitable Convention Hall. He read a letter of invitation from Mayor David Rose.

Mr. William Seafert presented the claims of Chicago, described the great concrete works to be seen there, numerous other advantages of the city, and guaranteed \$1,000.00 and more if necessary, to entertain the committee.

E. S. Hotchkiss spoke in favor of Chicago.

Mr. Watson seconded Mr. Seafert's motion.

Mr. Sherer spoke in favor of Milwaukee.

The vote stood as follows: Milwaukee, 45; Chicago, 29; Columbus, 20.

Next Meeting at Milwaukee.

Long and continued applause greeted the selection of the city of beer for holding their next convention. Mr. Hotchkiss moved that the selection be made unanimous, which was done.

Mr. Goetzmann, who temporarily occupied the chair, asked that a vote of thanks be passed to the retiring president, Mr. Given. This was done unanimously. Mr. Goetzmann then declared the meeting adjourned *sine die*.

Aside from the business side of the meeting it had many enjoyable features from a purely social point of view. Old friends got together from all over the country and renewed their friendship.

Taking it straight through, the Indianapolis meeting was a great success, and results that are far-reaching and destined to cut a big figure in cement operations, are sure to grow out of it. It ended in the desired harmony. The results accomplished were marvelous, and if the association realizes one-half of what it gives promise of doing, it will accomplish wonders in advancing the interest of cement users throughout the United States.

THE EXHIBIT FEATURE.

One of the most noticeable features of the convention was the exhibits of the machinery concerns catering to the building block industry, concrete mixers, reinforcing and fireproofing material of every description. Some of these were quite attractive and educational in their character, for they represented in some cases miniature plants with the machinery in actual operation, and no report would be complete without a detailed mention of the more prominent exhibits.

The Cleveland Car Co., West Park, Ohio, had their exhibit in the main Assembly Hall, and it consisted of a full sized car built of light steel, such as are found to be most useful in plants manufacturing building blocks or similar heavy commodities. The firm was represented by Messrs. Ellenberger and Caskey, who took pleasure in showing the advantage of their cars, and picked up all the information going about the meeting. They are giving away a nice leather pocketbook as a memento of the convention.

Ricketson Mineral Paint Works, Milwaukee, Wis., had their exhibit of coloring material, as well as samples of the raw material from which coloring matter is made, in the main Assembly Hall. Their exhibit was in charge of Mr. Edward Bogk, president of the company, exemplifying to the users of concrete blocks that it was possible to make their product more attractive, and widen the scope of the industry, by the use of the correct coloring matter, which is the only Ricketson grade.

Miracle Pressed Stone Co., Minneapolis, Minn., had an exhibit in the main Assembly Hall, of a sample wall constructed of their building block, and also on the convention floor a room devoted to the exhibit of their block machine, together with all the face plates and attachments which make a complete outfit. This exhibit was in charge of the officers of the company, Mr. O. U. Miracle, president; Mr. R. O. Miracle, secretary and treasurer; Mr. A. L. Goetzmann, of the Chicago office; A. N. Pierson, of the New York office; A. W. Hogue, representing the company at Toronto, besides Mr. A. R. Knight, J. O. Parry, E. B. Swift, A. F. Bowers and Captain L. Harris. In a little conversation with President O. U. Miracle he said there was evidently a "know how" necessary for the successful operation of block machines, and that the principles of construction should not be overlooked by those who contemplate making a success of the manufacture of building blocks. The marked success of this concern and the wide satisfaction which their machine has given, is no doubt due to the careful policy which they use in seeing that every customer of theirs produces a successful business by the operation of their system.

Harmon S. Palmer Hollow Concrete Building Block Co., Washington, D. C., had their adjustable block machine on exhibition, together with a number of sample blocks for various purposes, window sills, porch columns and the like, and also an immense

diagram of a building, showing the various sizes and shapes of blocks required in actual construction. This was a very entertaining and instructive feature, and was located in the main Assembly Hall. Mr. H. S. Palmer had personal charge of the exhibit, and was assisted by Messrs. W. W. Benson, George Voegel, Henry Wood, J. F. Messick, H. Staples and C. P. Childers. Mr. Palmer is the pioneer of the industry, and his exhibit naturally attracted a great deal of attention, for he is the first cause of all the interests which made this convention possible.

Miller & Huntington, Jackson, Mich., had a nice exhibit of their simple block machine, in charge of Mr. E. H. Oversmith, who manufactured blocks while you wait, and was doing a rushing business all the time. This was one of the easiest to operate that was on exhibition, requiring all hand work, but it is such a machine as anybody could afford to buy and build his own house.

The Cottom Artificial Stone and Manufacturing Co., Dayton, Ohio, had their block machine in operation, and the exhibit was in charge of Mr. T. O. Eichelberger and Mr. J. W. Popenoe, who were making blocks and exemplifying the workings of their machine, and doing a big business all the time.

E. W. Seamans, Grand Rapids, Mich., was exhibiting his brick mold and cement block machine in actual operation. Mr. Seamans was personally in charge of his exhibit, and he had several assistants making sand-cement bricks and building blocks on the other machine, according to the desire of the audience. His brick mold was the only thing of the kind on exhibition, and was very attractive to a large number of artificial stone manufacturers, on account of its evident simplicity, and the great range of work which was capable of being produced upon it, by reason of the quick change of the mold for making angular or molding face to the bricks.

The P. B. Miles Manufacturing Co., Jackson, Mich., had their block machine on exhibition, and they were manufacturing blocks and demonstrating the working of their machine. This exhibit was in charge of Mr. P. B. Miles, but most of the time the Indiana representatives of this company, Ralph & West, of Indianapolis, were exploiting the machine.

The Winget Concrete Machine Co., Columbus, Ohio, had their machine on exhibition in charge of Mr. E. S. McDowell and Mr. S. M. Coe, of Indianapolis, who is one of their general sales agents, and they were assisted by quite a staff who were making blocks on their 1905 pattern machine, which operates with a lever, applying the pressure with one stroke, in place of the crank as formerly. They had all kinds of molds for different processes, among which was the chimney block system, for both inside and outside, water tables, copings, etc.

The Blakeslee Concrete Block Machine Co., Columbus, Ohio, had their machine on exhibition, but did not make any blocks, although a sample block formed a part of the exhibit, and attractive printed matter was being handed out to those interested. The exhibit was in charge of Messrs. C. C. Shepherd and C. C. Houston.

Cement Machinery Co., manufacturers of the Normandin block machine, had several of their machines on exhibition, which were constantly being demonstrated by members of their staff, but they did not make any blocks, having quite a number of different shapes on exhibition, however. This company had a sumptuous parlor in conjunction with their exhibit for the entertainment of their friends and patrons, and were represented by Messrs. John H. Given, C. A. Chamberlin, L. D. Chamberlin, L. D. McClaffin, L. P. Normandin, M. J. Furnas, S. L. Wiltse and W. F. Cowham. They were giving out a souvenir pocket mirror and bore the distinction of having the first president of the association chosen from their delegation.

Contractors Supply and Equipment Co., Chicago, Ill., had one of their celebrated Smith Concrete Mixers in a room at the rear of the main Assembly Hall, where Mr. E. B. Kelley, of New York, and Mr. T. L. Smith, the inventor, of Milwaukee, were demonstrating the workings of the machine. There was continuously a crowd around this exhibit manifesting no little interest.

Noyes F. Palmer Manufacturing Co., Brooklyn (E.) New York, had an exhibit of their adjustable cast stone press, and Mr. Noyes F. Palmer in person, and his son Albert Palmer, were in charge of the exhibit, demonstrating the working of their machine, and showing the various adjustments. Mr. Palmer gave an interesting stereopticon entertainment on Tuesday night in the Assembly Hall on the tenth floor of the hotel before quite a large audience of block manufacturers. The entertain-

ment consisted of the same program that Mr. Palmer had shown before the Architects' Institute of New York, and the first thing thrown upon the screen was a certificate of commendation and approbation signed by the officers of the institute. A number of pictures followed in rapid succession, illustrating in detail the entire construction of a building, beginning with the cement in the barrel and ending with the finished house. The machine was set by reference to the measurements of an architect's plans, and the blocks were made in every case to comply with the exact measurements, and when it came to building the house, it went together like cut marble. These pictures were made from photographs taken during the construction of a beautiful little Queen Ann cottage which was erected in Brooklyn. Mr. Palmer explained that the walls of this house were built in eleven days time, by one man with two helpers, who were chiefly employed in carrying the blocks to such positions in the building as they might be needed. From an educational point of view, this was a complete lecture in itself.

The United States Shingle Machine Co., Saginaw, Mich., had a nicely constructed booth in a rear room, whose roof was covered with cement shingles of various colors, and on the table were quite a number of shingles which were handled by the crowd of interested spectators. The exhibit was in charge of the original inventor, Mr. George C. Zwerk, assisted by Mr. F. J. Lee. Mr. Zwerk explained that these cement shingles were just as cheap as good wooden shingles, or indeed somewhat cheaper, so that the user would have the advantage of the fireproof and indestructible feature without the cost of a cent. The machine was too ponderous to be placed on exhibition on the convention floor, but it was to be seen on the ground floor. From all appearances, this exhibit was getting a great deal of business if an attentive audience is any criterion.

Pettyjohn Bros., Terre Haute, Ind., were demonstrating their machine for the manufacture of building block. The exhibit was in charge of Mr. L. Pettyjohn, assisted by Mr. L. P. Dunn, who is an expert workman with the machine. Messrs. J. M. Cutsell and C. Flagg, of Brazil, Ind., were also assisting in the demonstration. They were making building blocks $7\frac{1}{2} \times 8 \times 20$ inches in 45 seconds, and put up six perfectly finished blocks in five minutes. They also had a great number of pictures to show of finished work which had been put up with their blocks.

The Cement Machinery Manufacturing Co., Burlington, Iowa, were exhibiting their Chicago Adjustable Hollow Cement Stone Machine, and had a large quantity of attractive printed matter.

The Chase Foundry and Manufacturing Co., Columbus, Ohio, manufacturers of cars, trucks and tracks for all purposes, exhibiting their cars suitable for cement block factories. The exhibit was in charge of Mr. C. P. Widdecomb.

The Century Cement Machine Co., Rochester, N. Y., had their "Hercules" cement stone machine on exhibition in the main corridor of the hotel, and also an exhibit of finished stone which had been made on them, consisting of moldings, rock fence, plain fence, and indeed almost every kind of stone one might desire to use. The exhibit was in charge of Mr. John N. Rauber, president, and Mr. J. W. Shone, secretary of the company. Mr. A. T. Bradley, assistant manager of the company, was exemplifying the working of the machine in its various processes. Messrs. A. Crandall and W. O. Williams, two of the company's able and genial salesmen, were out in the crowd talking "Hercules" to everybody.

The Brady Cement Stone Machine Co., Jackson, Mich., had their exhibit on the ground floor by reason of the fact that their machine was too large to be brought to the convention floor. This exhibit was in charge of Mr. Harry Abbott and Mr. James Geddes. They did not manufacture any blocks, but had all the necessary face plates, angle pieces and pallets, so as to show the exact method of procedure for the manufacture of all blocks and all the details necessary for perfect construction. This is really a monster machine and the pictures showing the work which has been done upon it were truly interesting to a very large audience, composed of block manufacturers and concrete engineers.

Fisher Hydraulic Stone System, Mt. Gilead, Ohio, was represented by Mr. W. H. Fisher in person, who was compelled to exhibit his machine by means of pictorial representations, as this is a ponderous affair, using hydraulic pressure to obtain the results, which he showed to be very fine by a large number of pictures of finished structures put up by his system.

J. H. Catherman & Son, Elkhart, Ind., exhibited their ideal cement posts, which is reinforced with galvanized wire and was in charge of Mr. Catherman personally, attracting no little attention.

The Ideal Concrete Machinery Co., South Bend, Ind., had one of the best working exhibits at the convention, continuously making blocks from morning until night during all the sessions until adjournment. They had a large number of pictures showing finished buildings which had been constructed by their system, and they always had an audience timing the operator who was steadily turning out the blocks according to the requirements and suggestions of the spectators. This exhibit was in charge of the officers of the company, Mr. F. A. Borst, president, Mr. S. L. Kelly, vice president, Mr. M. Wetzstein, secretary, and they were ably assisted by Messrs. F. J. Fitzsimmons and Fritz Arnold. This concern had a complete outfit for a miniature factory, and it was possible to observe the process of operation at every stage of the manufacture of building blocks by the Ideal system.

The National Building Block Co., Milwaukee, Wis., had their exhibit in the main Assembly Hall, which consisted of a sample wall made of their blocks. They manufacture a system of two piece blocks exclusively. This exhibit was in charge of Messrs. J. P. Sherer and H. F. Behrle. Along with this exhibit was that of Whitnall & Rademaker Supply Co., Milwaukee, who are the oldest and largest cement pipe manufacturers in the country, and of which company Mr. Sherer is also the president.

Standard Sand and Machine Co., Cleveland, Ohio, were exhibiting their "Simplicity" Building Block Machine, together with their sand drier and other machinery useful to the manufacture of cement blocks. The exhibit was in charge of A. L. Boughton, assisted by Mr. W. Mulhouser.

H. E. Goodwin, Indianapolis, Ind., had an extensive exhibit of his block machines, together with a large number of sample blocks, porch columns, chimney flues, window and door sills, in the main Assembly Hall. Mr. Goodwin himself was in charge of the exhibit, and was ably assisted by a large force in showing the merits of their machine.

The Western Cement Co., Louisville, Ky., had their exhibit in the main Assembly Hall, and was in charge of Mr. J. A. Fairleigh, who exhibited a number of bricks made from sand and cement; an interesting sample of Louisville cement concrete which had seen many years of service in Indianapolis, and is now a fine specimen.

Automatic Building Block Machine Co., of Jackson, Mich., whose exhibit was in charge of Mr. A. M. Haight, were operating their machine and handing out some interesting and instructive literature to the spectators. Their machine is thoroughly automatic in every particular, and attracted a great deal of attention and comment by all the block manufacturers who attended the convention and saw their machine in actual operation.

The American Hydraulic Stone Co., Denver, Col., had an exhibit on a table in the main corridor of the convention floor, which consisted chiefly of pictures of finished buildings by their two block system, together with printed matter. Their exhibit was in charge of Mr. W. J. Scott and Mr. H. D. Watson.

The International Fence and Fireproofing Co., Columbus, Ohio, had their exhibit in the alcove of the main corridor of the convention floor, and consisted of samples of their reinforcing fabric and standard cable, together with blue prints and illustrated printed matter, showing the method and excellence of their system. This exhibit was in charge of Mr. R. N. Cunningham, assisted by Mr. J. M. Campbell, and was one of the few exhibits in this especial line of the industry, attracting a large share of attention of those specially interested in the reinforced concrete branch.

The Hayden Automatic Block Machine Co., Columbus, Ohio, had an exhibit of their machine in charge of Mr. W. M. Scott, general manager of the company, who explained in detail all the working parts of the machine, and explained the enormous capacity of its range.

Stringer Machine Co., Jackson, Mich., had a small working model of their excellent block machine in charge of Mr. M. H. French, assisted by Mr. D. D. Stringer, the inventor of the machine. Mr. French explained that this was the latest member of a large family of block machines which have been produced in Jackson, and declares that he has got the best of them all.

Universal Concrete Machinery Co., Norfolk, Va., had on exhibition a miniature model of their ponderous machine which is adaptable to the manufacture of almost every kind of building block.

This exhibit was in charge of Mr. A. S. J. Gammon, assisted by Mr. H. Abrams. This is the only machine which was on exhibition built east of the Allegheny Mountains, and the company claims to have a fine lot of testimonials from architects and engineers who have seen the actual work of their system.

The Bonnot Co., Canton, Ohio, were represented by Mr. L. C. Bonnot, who showed a number of pictures, diagrams and printed matter of their Automatic Concrete Mixer, which Mr. Bonnot says is the mixer that does it all and does it well, having the advantage of working continuously while in operation.

The Municipal Engineering and Contracting Co., Chicago, Ill., were exhibiting their Chicago Improved Concrete Mixer in a room at the rear of Assembly Hall. The exhibit was in charge of Mr. Ernest McCullough, who had an expert operating the machine and exemplifying its workings. They also had a little model of the same machine in the main corridor of the hotel, which attracted no little attention.

Hawaian Concrete Contractor.

Undoubtedly the man who came farthest to attend the meeting of cement users at Indianapolis on January 17-19 was E. J. Lord, of the firm of Lord & Belsar, general contractors, Honolulu, H. I. Mr. Lord, however, did not come all the way from his island home inspired by a wish to take part in the formation of a new association. He was in this country to purchase machinery for use in connection with his business, and, happening to hear of the convention at Indianapolis, concluded to attend it. He was formerly engaged in business in the United States, of which he is a native.

Mr. Lord gave some interesting information regarding the conditions in far-off Hawaii. His company does a large business, mostly in the construction of cement walls and sea walls, concrete arches and columns. The use of such structures is rapidly increasing, he says, in that country. Mr. Lord states that the sand is a coral sand composed of corals and shells. It is light and does not make good bond for cement work. However, they have a good lava rock which, when crushed and run through the sand rollers, they use for work where strength is required. The sea sand is employed in walls where it is not necessary to be so particular.

The cement used is particularly all European Portland, which can be laid down in Hawaii cheaper than the American product. Much commercial fertilizer is employed in the islands and a large part of this comes from Germany, the cement being carried by the vessels as ballast. Such American Portland cement as is used comes from California. It is shipped in bags and what is lost on the freight in returning the empty sacks makes the price come higher than the European article. When the officials let a contract they want concrete to stand a certain strain and the contractors naturally get that cement which, at the lowest price, will stand the given test. The California cement, Mr. Lord says, according to the tests thus far made, excels the European, but it has not been long enough in use to determine this point definitely.

At Pearl Harbor, eight miles from Honolulu, Mr. Lord says the government is putting up a military station which will be of concrete. The tendency is to use more concrete materials all the time as lumber is constantly growing higher in price. But generally speaking, building operations are not booming at the present as the population is at a stand still. Contracts for a large government insane asylum were let in November and hollow concrete blocks were to be the material, but there was a misunderstanding in regard to specifications and the contractors refused to go on with the work, claiming that the specifications called for hand made blocks that could not be made at the cost. The affair is now in the courts. The building is a \$60,000.00 structure. Mr. Lord will leave for San Francisco February 2, and shortly thereafter will return to his home in the mid-Pacific.

Still a New Method.

Among those whose talk interested visitors at the Indianapolis convention of cement users was A. Stanley, of 1123 East Washington Street, Indianapolis. Mr. Stanley is the inventor of a new and different method of making concrete blocks for which he claims much. His method is to use a wet mixture and trowel all exposed surfaces. He claims that by plans that he has invented a stone can be made water proof without paint or anything else. His way of molding the stones of wet concrete he says is different from any process hitherto used.

MINNEAPOLIS MEETING.

The Northwest Cement Products Association Organized with Great Attendance.

AN EYE OPENER TO ALL WHO DOUBT CONCRETE.

MINNEAPOLIS, MINN., January 24.—The first meeting of the Northwest Cement Products' Association was called to order by F. H. Chapin, of Minneapolis, early in the afternoon. O. U. Miracle, of Minneapolis, was made temporary chairman, and Mr. F. H. Chapin temporary secretary.

From the first it was evident the attendance would be large, notwithstanding the severe weather. Great interest and great freedom of expression was manifest from the start.

Welcome by the Mayor.

Mayor D. P. Jones, in a short address of welcome, paid strong tribute to the value of concrete, pointing out many of its good qualities, especially did he commend reinforced concrete as a solution to many problems in building and municipal work, saying it gives strength, durability and freedom from fire's dangers. He gave the members the freedom of the city.

J. M. Hagen, an engineer from the city, explained the object for which they had been brought together, stating that it was for the purpose of bringing into close relations for the purpose of education and the mutual exchange of knowledge, the architect, the engineer, the contractor, the builder and the cement user; in fact, all who were interested in the manufacture or use of concrete in any form.

Chairman Miracle stated "That such a convention could not help but be of great value as a school for the dissemination of knowledge to its members and as a means of showing the public more fully the many valuable points about all kinds of concrete work. Since concrete is usurping fields formerly supplied by other materials, we must show the public its worth. The regular program was then taken up.

CEMENT FLOOR TESTING.

JAMES HOUGHTON, BUILDING INSPECTOR.

Contractors did not know much about it, and the engineers who talked upon it did not agree as to its workings. Learning that Cincinnati had more reinforced concrete construction buildings than any other city, he visited the city and examined them. He found the sixteen-story Ingalls building, of concrete and faced with brick, without beams, arches or other materials, except of reinforced concrete, and could not discover a flaw in it. There are also other buildings of the same material. But there is much to be learned about it. Engineers and others handling it do not agree as to the amount of metal required for the concrete. Engineers have no formula as to the amount necessary. Hence, the rule in Minneapolis has been to carefully test such buildings, by loading to five times the ordinary load to be put upon it, and there have been no failures in the city, although there have been in other cities. The thought that, frequently, the fault has been that the men doing the work had removed the forms too soon; before the concrete was set. There is a building in Minneapolis with 16-foot spans and 20-foot bays, which was loaded with 700 pounds to the foot for two days. When unloaded, the floors sprang back to almost exactly where they were at the start, showing practically no deflection. He referred to the building of the Northwestern Knitting Works, just completed, where a panel was loaded with between 700 and 800 pounds to the foot. The building can never be loaded to exceed 200 pounds with the material it is designed to carry. There are several things required in the construction of buildings of reinforced concrete. Good materials must be prop-

erly mixed by men who understand the use of cement; a proper amount of reinforcement, and, above all, an honest man to do the job. Without this, the job will be a failure. There is great danger to the business in that men will go into it without proper knowledge, and they are bound to have trouble. In New York, the building department has accepted reinforced concrete as fire-proof. Their trap rock stood a fire test, but it was a question with the speaker if our lime rock will stand as severe a test, and he doubted if it would. He regarded it a great improvement upon wooden construction, and there is a great future for it. Speaking upon concrete building blocks, the department had no regulations upon them or governing their manufacture, so last June he had an ordinance drawn which gave something to work upon. It placed them upon the same basis as brick, and allowed two-story buildings, with not to exceed 33 per cent. of air space. Several tests have been made of the blocks at the university, with varying results; some showing up well and others very poor. One party started to make the blocks. He probably did not understand the use of cement, and made them in the open air where the sun and wind got at them, and with scant use of water upon them. They did not show up well at all, in the test. But blocks properly made are all right. The trouble is, that some one will think there is a gold mine in the business and will try to make them from a mold and wet sand. On the wet and dry processes, he thought there was hardly sufficient accurate data yet at hand to state which was better. The wet seemed to be the harder and better, but he believed that good block can be made in the dry process, of properly cured after they are made. The entrance to the business of men without knowledge of it, endangers the success and standing of it. All have lots to learn upon it, and in the meantime, for lack of definite knowledge upon it, the department insists upon a thorough test before accepting anything.

William Seafert, of Chicago, responding to the charge of lack of formula as to plans and stress, said that was in the province of the engineer, and he had made the plans for a building, which were figured so as to be safe. If the contractor attempts to make his own figures, he endangers the plan. Armored concrete construction, he declared to be very old. Europe has used it for years, and it has stood every test and it is known that it is safe and enduring.

However, each city should demand that a careful test of all beams be made. He further criticized architects for leaning too much to Grecian, Roman and Egyptian architecture, and as lacking originality, and especially as being deficient in accurate knowledge of the newer forms of construction and new and modern materials of construction so that for concrete construction the engineer had to be depended upon mainly. The architect is too slow to take hold of new materials and forms.

The engineer figures every work anew and the figures are based so that the work will endure, while architecture is a knowledge of ancient forms.

W. G. Engle raised the point that the insurance companies were unjust against concrete block buildings, giving them no better rate than veneered buildings. He thought they should be given the same as brick. Mr. Seafert, responding, said, that in Chicago, they got a better rate than brick.

Chairman Miracle observed that the organization should work for legislation, for insurance and building law. He had a recent experience with a building inspector in a Southern city, who contended that concrete blocks should be furnished the full thickness of solid material, required by the city laws, and would insist upon a thickness of one-third more than the law asked, if there was 33 per cent. air space.

Ernest McCullough, Chicago, paid a tribute to the study being devoted to the uses of concrete by the insurance companies. Speaking of building blocks, he had seen some which would absorb four per cent. of their own weight in water, and others which would absorb 40 per cent. The Baltimore fire proved, conclusively, that concrete was fire-proof. But it can not be expected that building inspectors and insurance companies will show favor to the article until it is known that the men in the business understand it fully. He knew a man who made up a lot of 2,000 blocks for a building. It was in the summer, and a freezing test was not practicable. Therefore a Glaubers' salt test was made and the blocks failed. They were evidently not properly made since buildings 15 to 20 stories can be built and will last forever. The greatest danger of failures is in small buildings, where the concrete is frequently made by men who do not know requirements for making a good concrete. Concrete blocks should be as near water-proof as possible, then they will stand almost any thing.

With reference to wet and dry mixing he was of the opinion that the introduction of mechanical mixers was responsible for the use of more moist mixtures generally on monolithic and reinforced structures, since these mixers gave more even distribution than could be obtained by hand. When a mixer is used the mass should be wet enough that much tamping will not be required to fill the corners. Dry, or rather semi-dry mixtures will get hard but not quite so quickly, and require more attention after molding, in order to get best results. We talk about dry mixture as meaning a mixture which has all the water it will carry without sticking to the mold, when we wish to remove the mold as soon as the block is tamped.

J. M. Hazen mentioned some very hard hollow concrete block made from the best Portland cement and crushed stone screenings 5 to 1, which were made on wet process that stood laying up after 48 hours, mixed by hand, but this is not economical.

The experience of James T. Freestone, of Grand Rapids, Mich., indicated that it was bad practice to use a sand or gravel with clay in it, since clay and cement would not set up hard. He also said that while the wet process might make an excellent concrete, it required too much paraphernalia to use it economically. He therefore favored the use of the so-called dry process, using as much water as possible, without getting so wet as to adhere to the molds.

Mr. Seafert referred to the Chicago subways for a comparison of the use of gravel versus that of crushed limestone.

Mr. William Dickinson, of La Salle, Ill., being introduced as the oldest cement man still in the business, stated that he had sold the first Portland cement handled in any quantity west of New York. This was a shipment of English Portland cement, sold to John V. Farwell, of Chicago, at \$10.00 per barrel.

In order to get good block three things are essential—the use of good materials, honest work, work which can not be done too well, plenty of water, whether the wet or dry way is used, plenty of water must be given it during the hardening, drown it if you can. Every block plant should have an economical arrangement for sprinkling block frequently while they are setting up. They should be thoroughly wet down at least once a day and preferably oftener.

COMMITTEES APPOINTED.

The following committees were appointed by the chair:

Committee on Credentials—W. M. Jahnig, Gottlieb Schurenbrand, W. G. Engle, W. D. Rowe, Geo. W. Carpenter, Wm. Stewart, J. P. Shearer.

Committee on Rules of Order of Business—R. L. Humphreys, E. W. Dow, B. S. Oakes, John Nelson, C. W. Connor, Eugene Teutsch, A. P. Brogeson, F. M. Thompson, H. E. Murphy, S. V. Peppel.

Committee on Constitution—Lee Storer, James Wimmer, John Olson, James Houghton, M. G. Rogers, E. H. McCullough, Edward Bogk, S. H. Greenwood, A. Moorehouse, George Ingram.

Committee on Organization and Nomination—J. T. Summers, A. R. Priest, D. S. Whittemore, E. Russell, J. M. Hazen, J. W. Cooper, S. H. Cooke, A. L. Hudnie, W. A. Boyd, H. E. Milligan.

A committee was appointed to arrange a debate, giving each of four men fifteen minutes to discuss wet and dry process of manufacture. This committee failed to find suitable men willing to talk

on such short notice so this debate will probably be a feature of the next meeting.

The meeting then adjourned.

TUESDAY EVENING SESSION.

The entire evening was given up to an illustrated lecture by Richard L. Humphrey, C. E., of Philadelphia, Pa., who was introduced by H. B. Avery, of the Engineers' Club.

Mr. Humphrey called attention to the rapid growth of the use of cement in many new fields as an indicator that we are on the threshold of a new age—a cement or concrete age. He then gave a concise but complete history of the development of the manufacture and uses of cement, including the introduction and development of reinforced concrete. The testing of cement and concrete was given some attention by Mr. Humphrey who had charge of the cement testing laboratory at the World's Fair, and was probably the most complete and most modern laboratory in the world for the testing of cement and concrete. Much valuable data was given as results of work done there by him. The lecture was profusely illustrated by lantern slides. He also called attention to a few limitations or problems yet unsolved in the use of cement, but was sure these would be removed, and even if they were not they were not of sufficient importance to bar the use of cement.

The tenor of this talk would indicate that he was in favor of monolithic structures.

Mr. Avery then invited all that were interested in engineering to join the Engineers' Club.

WEDNESDAY MORNING SESSION.

The program was proceeded with at once and J. P. Sherer, of Milwaukee, called, and delivered the same address as presented at the National Association of Cement Users at Indianapolis, and appears elsewhere as a part of that convention.

Discussing the above mentioned paper Mr. Humphrey said the effect of coloring or mineral oxides had not been fully determined, but some were considered injurious. Those mentioned above, however, were the ones least likely to give trouble. He also brought out that accelerated hardening of sewer pipe was due to joint action of heat, steam and carbonization of any lime that might be present as such, and was sure the failure of the cement sewer pipe mentioned would not have occurred had Portland cement been used, and that the cause of failure was probably due to the cement used.

He had heard papers read by pretty good men who recommend as much as 15 to 20 per cent. of loam as safe and desirable. It is probable that a very small amount of clay might be desirable. However authorities do not seem to be a unit on this matter. The safest way is not to take chances on a loamy or clayey sand or gravel.

He expressed himself of the opinion that too much weight was given to the necessity for having sharp sand, and said he had seen good work done with well rounded sands. The gradation of sands so as to reduce voids, however, was desirable, and such sands would give denser bodies and more waterproof bodies than would those which had sands of uniform size, whether sharp or rounded.

In determining voids in a mass or mixture, if the stones are porous they should be moistened first before test is made for voids.

Limestone and granite used in concrete is protected by a film of cement and sand, so that it would require a very exceptional heat to penetrate this and make them dangerous in concrete. He does not like the use of extremely fine dust of any sort.

Portland cements resist frost much better than natural. Cement mortars will harden even when frozen but the hardening action is so retarded that it takes a very long time to get hard, and it is seldom necessary to let them freeze, as by heating sand, gravel and water, and by a little external protection they will not freeze, as the chemical action of setting generates some heat. Concrete should be at least two weeks old before it is exposed to frost.

The question was asked how to avoid efflorescence or scumming, and it seemed no one had solved the problem. If your block is waterproof it will probably be safe, as this white material is soluble salts that are carried through the pores to the surface, and when the water evaporates they show as a white scum.

Prof. F. H. Constant, of the University of Minnesota, gave an extended talk upon the work of the university in following up concrete construction, by tests and experiments, showing its hearty sympathy with the business, and its willingness and intention to further it. Various freezing tests have been applied to blocks with Portland and natural cements. The Portland of frost, showed delay when allowed to reach a the natural cements have a freezing test.

The colleges and engineering schools are working in order to get definite laws rules for determining what will be a safe any concrete structure.

WEDNESDAY AFTERNOON.

HEAVY CONCRETE CONSTRUCTION.

BY G. W. CAPPELEN, C. E., MINNEAPOLIS.

Necessity has forced it upon us. He was putting in a railroad bridge, across the Mississippi at Minneapolis, nineteen years ago, with instructions to go to bedrock. The piers were to sustain two 150-foot spans, and it was impossible to put in stone work satisfactory, and so concrete was set in the water, which proved very satisfactory, and remains so to-day. Bridges were then of limestone, and everyone was afraid of concrete. He experimented with a concrete bridge, which was a great success. Reinforced concrete work he also took up for building, and put in such work for an oatmeal mill, which also worked well. He favored a very wet concrete, where it can be handled, although in some instances, as in the bridge arches, it will run away. He regarded the use of rods for reinforcement, as open to all, despite the so-called patents which are claimed, and related his experience in attempting to patent a hollow beam, only to find that it had been patented seventeen years before. He now has in hand a power dam, across the Mississippi at Otsego, where concrete will be used. He will use concrete piles under the power house, either those made and driven, or those made as set. There are unlimited uses for concrete, but care must be taken for proper materials and workmanship. The proper amount of cement must be used—about five to one. There is a tendency to cut it down to eight to one, and to otherwise slight the work, which will prove disastrous to the use of reinforced concrete.

CONCRETE BLOCKS FOR BUILDING PURPOSES.

BY REV. J. W. SHEEHAN, BELDEN, MICH.

He gave the experience which he had in building a church of concrete building block, he having personal supervision of the manufacture of the blocks. The building is 113x70, with a 60-foot tower, and is regarded as very beautiful. They used good, clean, coarse gravel, free from clay and soil, sifted the face material out of the gravel and took care with the color of the cement used. The worth of the cements seemed to be fairly general, but the colors resulted in various shades. They used a dark rock cement for the block, about five to one, and for the face about two to one, although he would recommend three to one for face and possibly six to one for the body, as the blocks are inclined to check a little if too much cement is used. The mixing should be very carefully and thoroughly done, and the water applied evenly and lightly, using plenty of it. Tamping is very essential and the curing must be carefully done, out of the sun and weather. The crushing pressure on blocks has been tested as comparing eight inches of concrete block to 13 inches of brick. The comparative cost was about half what the church would have cost in brick. Answering questions as to the facing, he advocated a dry mixture for the facing and wet for the body, the moisture of the latter being sufficient to penetrate the former. The discussion reached the making of caps and sills. Lee Stover, of Watertown, S. D., said that architects are usually unfriendly to building blocks and must be educated as to sizes and measurements desirable. These blocks and sills can be made by anyone but should stand longer than ordinary blocks.

CONCRETE SEWER CONSTRUCTION.

C. L. Ilstrup, sewer engineer of Minneapolis, gave a detailed account of the construction of concrete sewers, reinforced, in Minneapolis, the past season.

Sewers must be constructed to avoid the percolation of sewage, and to reduce the frictional resistance as much as possible. The smoothness of the invert is very important as the size can be materially reduced—20 per cent. at times—by the smooth inner surface. They should wear evenly, resisting the grind, subjected by the sand washed away. Reinforcement should be used to avoid strain. Proper forms should be used, and too much motion is to be avoided in the concrete in, lest the quality of the work is to be used. The finished work should be protected from frost and heat while setting. The sewers are drawn after 24 hours, and the arches loaded after three days. Manholes are constructed with iron moulds. These sewers do not show any deflection, are perfectly smooth inside, and reasonably free from water percolating through. As to comparative cost, the 60-inch concrete sewer costs \$2.53 per foot, as compared with \$3.57 per foot for brick of the same size. A 78-inch concrete sewer costs \$3.03 per foot, as compared with \$4.65 for brick of the same size. Cement delivered \$1.45 per barrel. Mixture 1-3-5. No stone longer than $\frac{3}{4}$ in. But he regarded the concrete as better than brick because of its smoother interior. Steel arch bars, one-half inch, placed twelve inches apart, were used, and $\frac{3}{4}$ -inch binding bars, 9 to 11 inches. The mixture was one to three of sand, and five of stone. The use of concrete allows flexibility in changing conditions, by increasing thickness or more steel, which is not permissible, so easily, with brick. He believed that lighter walls could be used. Prof. Humphreys told of an oval sewer, in Philadelphia, which was washed from under by a broken main, leaving 45 feet exposed. The earth was replaced and the sewer suffered no damage.

A paper was read by the secretary on behalf of G. W. Kirwan, of St. Louis, read at Indianapolis National Convention and given in full as a part of that meeting, on "Waterproofing of Cement Blocks." It urged making blocks impervious, and developed considerable discussion as to the manner and kind of blocks which were the better. Some held that porous blocks were better resistors of cold and damp than the denser. Others that an air space was indispensable and that it must provide for a circulation.

E. McCullough told of waterproofing experiences. The soap and alum mixtures known as Sylvester System, will serve to waterproof block, using powdered alum, 3 to 5 per cent., mixed with the cement, and saturated solution of castile soap for the moisture. Common soap can be used, although it is not desirable. For a building already constructed, these solutions can be used, applying first the soap water, as thick as the soap will be absorbed, and when that coat dries, apply the alum. These solutions are to be applied with a whitewash brush thoroughly, and allowed to dry on and in. The building should be as dry as possible before applying that the moisture may be absorbed. Three coats will make it waterproof. He had also used a stone liquid which was good. Answering a question as to there being a scum on the building so treated, he said that the soap and alum would leave a scum, but it could be removed by a wire brush after it had time to set in. A general debate ensued on experience with waterproofing and the porosity of blocks under certain conditions.

CONCRETE BRIDGES.

BY W. S. HEWITT, MINNEAPOLIS.

He referred to the early cement bridges of the Romans, as of concrete, and practically the same as ours, and traced their modern development. The natural advantages of the concrete bridge he thought were obvious as concrete grows stronger with age, if made of proper cement and proper mixtures. Steel encased in concrete is the only case where it will continue against corrosion. The criticism made that more steel than absolutely necessary is used in reinforced construction is true, for there are many matters which are uncertain. A favorable thing about concrete bridges is that it is about impossible to build an ill-looking arch, they being always graceful, while steel bridges are seldom, if ever, graceful. He opposed the imitation of stone in blocks and predicted that in ten years the stone men would be cutting their stone in imitation of concrete. Comparing the cost of a steel bridge with buckle steel and concrete floor, and paved, the concrete bridge is the cheaper and is free from the necessity of painting and other repairs. The future of concrete construction is such that none of those present can ever imagine it.

WEDNESDAY EVENING SESSION.

After announcements for the next day by the chairman and a report of progress by the committees, C. A. P. Turner was introduced and delivered the following lecture, illustrating by lantern slides:

REINFORCED CONCRETE.

C. A. P. TURNER, C. E.

Gentlemen: In greeting you this evening I desire to express my hearty sympathy with the object of your convention, to disseminate popular information regarding the use of Portland cement. The industry and enterprise of the American Portland Cement Manufacturer has now placed at the disposal of the enterprising engineer or builder, a thoroughly reliable material when properly handled, which bids fair to replace timber and structural steel in buildings and short span bridges.

In making this statement the writer will say frankly that the view expressed as the result of eighteen years practical experience in building and structural work, as draughtsman, contractor and designing engineer. For the past ten years the writer has followed closely every structure he could in concrete steel, but it has been only of late that he has been in position to place the result of this study in the form of reinforced concrete structures, which will later be illustrated.

In treating the subject from the popular standpoint, the writer would first say a few words as to the reliability of the construction as compared with steel or timber. Ignorant abuse will render dangerous the best material which the engineer uses—for example, some months ago the writer was called on to inspect some coupler pockets forged out of 1 $\frac{1}{4}$ x 1 in. bars, made by a Pittsburg company. They were worthless, the writer was told, and going to the pile and selecting four, they were placed on the ground and struck a few sharp blows with a sledge, a single blow fractured ten square inches of metal in two cases. Now this area in normal condition has a value of 600,000 pounds. Taking the shank of a steam hammer, the center was bent flat on itself without fracture, proving that the smith had burned the steel in forging, until it was worthless at the bend.

Similar inexcusable ignorance in working concrete will likewise result in inferior work, but by no means to such an extent as that instanced in the case of the steel.

The mistake that is made by many in fabricating reinforced concrete is the endeavor to get strength with cheap concrete. A common proportion is 1 cement, 3 sand, 5 stone—a mixture much too poor to secure the best results, or the greatest strength for a minimum cost. A mixture of 1 cement to 2 of sand and 2 broken stone of size from a pea to that which will pass a three-quarter inch screen is to be preferred. The stone should be screened, if limestone, otherwise the dust, such as that of trap rock or granite may be used in lieu of sand. By making this mixture wet enough to flow slowly and require no tamping whatever, the question of poor workmanship where the material is mixed by machine in exact proportions is entirely eliminated; any laborer you may employ who can dump the car and level off the cement will do as good work as can be done.

Such concrete three months old should give a value in compression of 2,500 pounds per inch, or more, without reinforcement. In the form of a column, if restrained laterally, Considere has shown that its crushing strength can be increased five fold, or more, dependent on the reinforcement.

The principal of this reinforcement is this: If we take a light sheet metal cylinder and fill the same with sand, the cylinder would support a load on the sand much greater than it would empty, since the metal is in tension and the filling with the lateral restraint carries the load.

Now were the metal shell square, evidently the sides of the shell would bulge sidewise under the internal pressure—similarly any attempt to hoop a reinforced column with a square hoop is an amusing absurdity, the slightest lateral bending removing the necessary restraint.

At first thought it might seem that a continuous cylindrical shell would be the best means of reinforcement, but the vertical metal being more rigid than the concrete, would be strained to its limit before being brought into action in its capacity of lateral reinforcement, hence the undesirability of attempting to make the vertical reinforcement used

continuous, i. e., without some concrete between ends where this principle is to be employed. Or making the reinforcement in form of a spiral coil as recommended by Considere.

The criticism that may be urged against some forms used, appears to the writer to lie in the failure to make good connection to the beams. For that reason the reinforcement advocated by him is in the form of a grill of vertical rods banded at intervals by strong riveted hoops with one of the rods bent outward into each beam, connected to and supported by the column, and the whole wrapped or hooped with netting.

As in this country the use of concrete construction is in its earlier stages, it is not surprising perhaps, that many of its advocates are imitating the methods of framing required for construction in entirely different materials, rather than forms and proportions peculiarly adapted to reinforced concrete. Mr. Humphreys in his excellent talk yesterday emphasized this effort in connection with bridges to bury a structural steel frame of sufficient strength for the load in concrete and term the clumsy conglomeration, reinforced concrete.

In the structural line we have attempts to reinforce structural steel and concrete, to put in beams as thick as required for the old fashioned wood framing, attempts to reinforce in one direction only, forgetting that in a monolithic mass of the size with which we are dealing, temperature stresses must be provided for in the reinforcement of the work so as to stand without cracking.

In designing reinforcement of beams, advantage should be taken of the principle of continuity, since with the constant section we have to provide only for two-thirds the moment of a simple beam and we have but one-fifth of the deflection, for the beam fixed at both ends that we would have for a simple beam.

This system of design calls for the major section of the metal for flange reinforcement over the support and furnishes ample provision for shear.

In the construction work in this line, it is well to bear in mind that centering is a considerable item and that each additional beam is an extra expense. While we may not discard beams for heavy work for light loads, we may make a simple slab from column to column, spacing 16 to 18 ft. running main lines of reinforcement from column to column directly and transversely with lighter fabric between these lines, all buried in a slab of uniform thickness.

A few words regarding the interesting peculiarities of reinforced concrete. We will shortly illustrate a panel which under 82 tons load showed absolutely no deflection whatever. Now the materials with which we deal in engineering work are elastic, why then such deportment of these beams? In setting up, the concrete shrinks and the rods reinforcing the bottom of the beam are actually in compression, also the top of the beam in tension due to internal stress. Until this condition is counterbalanced we could then expect no elastic deformation. This feature of the deportment of reinforced concrete is worthy of serious consideration by those who contemplate using shapes of irregular form as reinforcing members.

In crushing concrete usually shears at an angle approximately forty-five degrees to the direction of pressure, hence plain reinforcement, either parallel or at right angles to the line of pressure has a marked influence on its strength.

To return to the more popular phases of the question of reinforced concrete; can it be figured with accuracy. And do we know enough about it to use it with safety? The answer is emphatically in the affirmative. The engineer can figure the strength with the same degree of precision certainly, that he can timber construction, while if the tensile value of the concrete is disregarded as it is in good practice, the error is invariably on the side of safety.

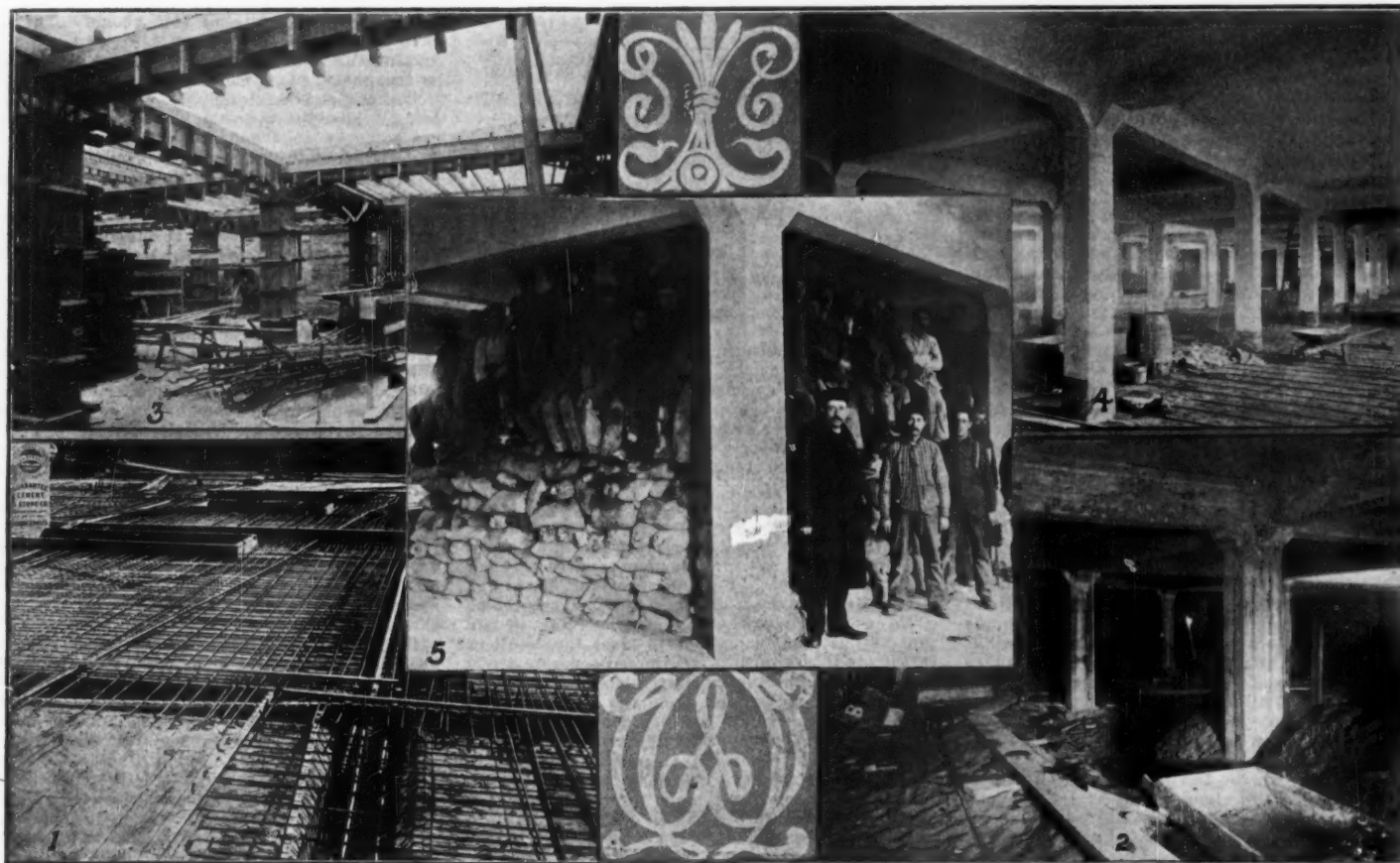
How does reinforced concrete compare in cost with older styles of construction? For heavy buildings we can compete with wood when the working load is 500 pounds per square foot or more.

For lighter loads we can compete at a good profit with any of the older forms of fireproof construction, saving the owner the cost of the entire steel skeleton.

For loads greater than 800 pounds per square foot, it is cheaper than timber if both are made of equal strength.

As regards its fireproof properties there is nothing in use which equals it.

At the Paris Exposition the Hennebique Company erected a cement concrete building in which to test both the strength of the floors and their resistance to fire when loaded. The first floor was load-



THE TURNER SYSTEM OF CONCRETE STEEL CONSTRUCTION.

1—Floor Reinforcement. 2—Basement after Removal of Forms. 3—Centering, Partly in Position and Column Skeletons. 4—The Finished Work. 5—Test Load 100 Tons on panel 16 feet 8 inches by 15 feet 5 inches. Floor Slab $5\frac{1}{4}$ inches thick.

ed to three thousand pounds per square yard; the upper floor to two thousand pounds. The deflection was barely one-twenty-fifth of an inch. A big fire of cord wood and oil was started on lower floor and kept at full intensity for an hour, and although the heat developed was 1800 degrees F., yet the temperature on the floor above the fire only increased about four degrees, showing that merchandise would not have been injured in such a position. At the end of an hour the deflection of the heated ceiling had increased to one-half inch. Then the whole building was drenched with water, and two hours later the load was removed, whereupon a rise of one-half inch took place, showing no permanent deflection or injury to the construction.

The construction of reinforced concrete is supposed by many to be a slow business while as a matter of fact, in no system of construction can the materials be as promptly obtained or the work more rapidly pushed. The cement and rods can be obtained, if necessary, at a week's notice and the rough timber for forms is a stock proposition. A single half yard mixer and suitable crew can readily erect a structure with floor of 16,000 square feet area in a week's time with fair weather.

To the contractor who has vainly tried in our cold climate in winter to conglomerate 16 parts of frozen sand and gravel with one part of cement—plus ice water, and produce smooth concrete work, the idea of putting in satisfactory reinforced concrete in winter seems an impossibility. He is respectfully referred to the paper of W. A. Rogers, read before the Western Society of Engineers, who concludes from the tests that exposing freshly mixed Portland cement to a freezing temperature seems to affect its rate of hardening, making it slower, but eventually the concrete will be just as good as if it has not been exposed to the cold. A conclusion in accord with the writer's experience.

As the object of this convention is the promotion of the cement industry, a few notes on experience in promotion of a few concrete constructions may be of interest.

We call on our friend, the outspoken, honest, old-fashioned architect, and inquire if we may be favored with an opportunity to figure on his elegant five-story warehouse—well, he hadn't considered concrete—but what size would you make the column? Fourteen to eighteen inches square, whichever you prefer, you reply.

He glances at you curiously, apparently to see whether you have a few loose gears sticking through the epidermis covering your thinking machine, and wants to know whether you concrete men are plum crazy.

The paper was profusely illustrated by stereopticon slides.

Many of the views showed method of reinforcing, others manner in which the concrete was mixed and handled. They use a mixer built by the Clyde Iron Works. Other views showed interior of a great warehouse. A large number of the members visited this warehouse next day under the guidance of John Wunder, the contractor, who built it.

THE SOCIAL SIDE.

Immediately following the lecture adjournment was made in a body to the rooms of the Builders' Exchange in the Kasota Building, where the members of the exchange had arranged for a smoker in honor of the occasion.

Chairman N. W. Nelson, of the firm of contractors, Libbey & Nelson, made a brief speech of welcome and an exceptionally pleasant evening was filled in. Music by the quartette was interspersed between addresses and funny stories.

Messrs. Goetzmann, Sherer, McLane, Chapin, Roache and Miracle contributed to the evening's entertainment. There was plenty of good cigars and plenty of good humor and a lively time, till close to midnight, when the party broke up with all in a happy frame of mind, knowing that they would come and see the Builders' Exchange again soon.

THURSDAY MORNING.

Prior to the regular session, there was a meeting called, of the sidewalk men, to consider their particular interests. J. T. Summers, of Sioux Falls, S. D., presided. The principal theme was of a set of specifications for sidewalk work, in order that there need not be the wide difference in price which exists between neighboring towns where specifications differ radically, as to composition, mix and foundation. It was stated, that in addition to hav-

ing widely varying specifications, there were also, in many towns, none at all, but bids were asked, and the man doing the good job, lost to the one who skinned it. One case was named where bids ranged from 6c to 19c per square foot. Local boards are not acquainted with the needs of the work and fix their specifications according to their ideas and prejudices. It was favored that the association take up the matter of a uniform set of specifications drawn from the experience of members, and formulate a set to present to various boards for adoption.

The regular meeting was then taken up, beginning with a paper by J. A. Mitchell, Goshen, Ind., upon the manufacture of cement posts. He described various experiences with them, always with good results. They will resist frost and fire, are indestructible, and are, in the end, cheaper than wood. He regarded a cement post at 30c, cheaper than wood at 5c. They must be reinforced by some metal, galvanized being best. Small line posts can be made from 11 to 12½c and large end posts, for 80c. He had made them three to 1 and 5 to 1, with good results, the mix depending upon the materials. Answering a question, he said that the weight was enough to keep frost from heaving them.

Mr. A. L. Goetzmann, of Chicago, followed with his paper upon the "Mixture of Concrete," being the same as reported in full elsewhere as a part of the National Association of Cement Users at Indianapolis.

Ernest McCullough, C. E., of Chicago, followed with a chalk talk explanatory of terms used in the meeting and of the theories of reinforcing and testing concrete.

He regarded the wet mix as the better if well done and cured for blocks. The quality of the product when using a dry mix depends to a great extent upon the faithfulness of the men doing the tamping and on the subsequent treatment of the block during the hardening period.

Prof. Humphrey concluded the forenoon by discussing a number of points brought up in the preceding papers. His opinion was at variance with that expressed in the papers on quite a few things, so far as the tests given are concerned.

Prof. Humphrey looks at tests only which give scientific accuracy, and those given were not intended to be so close as that and were for the aid

of people who would not be able to make an engineers' or chemists' test with any degree of accuracy. The use of cinders for reinforced concrete was not considered desirable, and for other concrete gives a body of less crushing strength.

THURSDAY AFTERNOON.

The debate of the forenoon was continued, as to test of cement, and Prof Humphrey regarded the ring test as worthless, the hammer test, useless, rettempering cements as necessarily weakening to the product. The use of sharp, angular sand he regarded as less desirable than round, since the object of the sand was to fill the voids and the round particles would set closer than the angular. Referring to wet and dry mix, wet does not mean sloppy, but fluid enough to compact in the mold without tamping. It is better to use an excess of water. Dry mix can not be compacted without trouble. The problem is to make a block durable, impervious and with a proper crushing strength. The larger particles will not sink to the bottom in tamping. The addition of a small per cent. of hydrated lime, 8 to 12 per cent, to cement, for mortar purposes, is beneficial and enables the laying of closer joints, making the mortar more plastic. To secure hydrated lime, either slake the lime and screen, or use the lime water to wet the cement. Porous blocks will admit air which may reach the metal, and rust will follow. Dry, hydrated lime has its advantages as it is free from expansion. He regarded a mixture, made of 6 parts of large, 3 small particles, and 1 of cement, means a 1 in 10 mixture, not 1 in 6, as was set up, because a screen would pass both the small and the larger particles. He preferred curing blocks in damp sand. On behalf of cement manufacturers, they were not attempting to sell poor goods but the article suffers changes after it leaves the factory. It hurts them to have a failure of blocks and results in less blocks used and less cement sold. Cement which is seasoned is better than fresh. He regarded 28 days as ample seasoning.

On dry, hydrated lime, S. V. Pennel knew of but isolated instances where it was used in block and brick manufacture, but thought that it was a profitable line of investigation to follow, since it was being extensively used for mortar and plaster purposes.

Speaking further, Prof. Humphrey said when hydrated lime was used in cement mortar it was very essential that it be thoroughly slaked and that all core be removed. The presence of air in a concrete was considered bad. This was to be eliminated by thorough mixing, which would give a dense mass. The concrete should be covered while hardening.

He urged that we learn to test cement and equip for it to go to the engineers' and chemists' laboratory more often as it is unsafe to depend upon any rule of thumb.

REPORTS OF COMMITTEES.

The Committee on Credentials recommended the seating of all who had registered and were eligible according to the constitution to be adopted later. *Adopted.*

The report of the Committee on Order of Business was also adopted, without discussion.

The following constitution was read by the chairman of that committee and recommended for adoption, and after a very brief discussion on one point was carried unanimously.

CONSTITUTION.

ARTICLE I.—Name.

SECTION 1.—This association shall be known as Northwest Cement Products' Association.

ARTICLE II.—Objects.

SECTION 1.—The object of this association shall be to acquire, preserve and disseminate valuable information pertaining to cement and its uses.

SEC. 2.—A list shall be kept of legitimate workers in the cement field and endeavors shall be made to protect the members from ignorant and false competition.

SEC. 3.—These objects shall be obtained by putting the members in touch with makers of machines and materials, and with special processes for using cement alone or in combination with other materials; to keep track of, and secure the passage of, sensible laws for building in various states and municipalities; to hold conventions and promote acquaintance among men having common interests in the work.

ARTICLE III.—Membership.

SECTION.—Companies, or individual users of cement, engineers, architects and manufacturers or agents of cement and machinery or appliances for using the same, shall be eligible for membership in this association.

SEC. 2.—Companies may send as many representatives to conventions of this association as they desire but each company can have but one vote.

SEC. 3.—Manufacturers and agents may send as many representatives to conventions of this association as they may desire but each machine or product represented can cast but one vote.

SEC. 4.—Absent members may be represented by proxy certified in writing to the secretary on constitutional amendments only.

ARTICLE IV.—Officers.

SECTION 1.—The management of the affairs of this association shall be vested in a board of directors, consisting of a president and five vice presidents, each vice president to be chairman of a section representing some interest in the membership.

SEC. 2.—The board of directors shall appoint from the membership a secretary and treasurer who shall not be members of the board of directors.

SEC. 3.—The board of directors shall be elected by a majority vote at each annual convention and hold office for one year or until their successors are elected and qualify.

ARTICLE V.—Duties of Officers.

SEC. 1.—The president shall be presiding officer at all conventions, be ex-officio member of all committees and sections, designate a presiding officer from among the vice presidents when unavoidably absent and generally perform all duties incumbent upon the president of such an organization.

The vice presidents shall respectively represent the following sections:

1. Cement and aggregates.
2. Machinery and equipment.
3. Cement blocks.
4. Concrete other than cement blocks.
5. Engineers and architects.

The secretary shall perform all the duties pertaining to such office in such an organization and generally carry out the orders of the board of directors.

The treasurer shall be custodian of all funds under the direction and control of the board of directors.

ARTICLE VI.—Conventions.

SEC. 1.—This association shall hold an annual convention to convene on third Tuesday in January of each year and the place for the following annual meeting shall be selected on the last day of each convention.

ARTICLE VII.—Fees and Dues.

SECTION 1.—The annual dues for members of this association shall be \$—, payable in advance.

SEC. 2.—Should the annual dues and money received from rental of exhibit space or from other sources be insufficient to pay the expenses of any convention, then an assessment may be levied upon the membership to meet such deficiency.

SEC. 3.—Members shall receive free of cost, one copy each of all publications the board of directors may issue and the same shall be sold at reasonable cost to all others who wish to obtain them.

SEC. 4.—Members in arrears for one year shall not be entitled to vote or to any representative at any convention and shall be considered suspended until all arrears are paid.

ARTICLE VIII.—Amendments.

SECTION 1.—Proposed amendments to this constitution shall be submitted in writing to the secretary thirty days before the annual convention. Printed copies of proposed amendments shall be mailed to the members before the convention and be distributed each day. They shall be voted on the last day of the convention and a majority vote of the members present and voting shall be necessary to carry an amendment.



VIEW OF THE EXHIBIT FEATURE OF THE MINNEAPOLIS CEMENT USERS' CONVENTION.

BY-LAWS.

1. Roberts Rules of Order shall govern all proceedings of this association, its officers, committees and sections.

2. Amendments and additions to these by-laws may be proposed in writing on any day of the convention and a majority vote of those present and voting shall be necessary to carry same.

The report of the Committee on Permanent Organization recommended that the temporary president and secretary be retained as permanent president and secretary, namely: O. U. Miracle, president; F. H. Chapin, secretary. We would recommend that J. M. Hazen be elected treasurer, and we would recommend the following vice presidents: First vice president, James Wimmer, Perry, Iowa; second vice president, Ernest McCullough, Chicago, Ill.; third vice president, E. H. Dow, Sioux Falls, S. D.; fourth vice president, J. W. Cooper, Minneapolis, Minn.; fifth vice president, H. G. Stanley, Hone, N. D.

This committee further recommends that the body extend a vote of thanks to the *Improvement Bulletin* of this city, and adopt the said paper as the official organ of this association for the ensuing year.

We also recommend a vote of thanks for the various courtesies extended this association, other than those mentioned.

The report of the committee was accepted and the above officers declared elected.

Appropriate speeches followed the election.

The interest in the meeting was so manifest and the desire for further discussion so evident that a motion to continue the meeting through Friday was carried without a dissenting vote.

Further discussion followed on many topics, prominent among which was a short talk by Mr. Goetzman, taking strong exceptions to some of Mr. Humphrey's statements earlier in the meeting and cited cases which seemed contrary to ideas advanced by Mr. Humphrey.

The next of importance was much talk participated in by a large number of members as to where and how to get good ground plans and elevations for houses of moderate cost, say \$1,000.00 to \$2,500.00. Plans that would be suitable for the use of concrete block. Some claimed that the architects made their plans purposely so blocks would not fit to the door and window spaces without cutting.

An architect present suggested that one draw back to block was lack of flexibility possible. He was soon shown that the range of size was such as would not require any material change in plans to make them fit.

It was suggested that if we could not get satisfactory plans here they were available at a very low cost from foreign countries.

On motion the board of directors were instructed to make arrangements for the procuring and publishing of a few such plans for the benefit of all concerned.

Mr. McLane defended the architect and felt that they had been misjudged by many of the speakers.

Mr. McCullough preferred the engineer to the architect for all concrete work, and felt that greater uniformity of size in blocks made would be desirable.

On motion a vote of thanks was extended to the officers, those on the program, the Builders' Exchange, the Commercial Club, the telephone and telegraph companies who had put in good accommodations, the trade papers present, and in fact, all who had aided in making this organization and meeting such a great success.

The sidewalk men next got their inning.

SIDEWALKS.

About an hour was spent in discussing the different phases of sidewalk building, foundations, expansion joints, etc. Some favored tile or frequent expansion joints, others gave instances where 24 square feet to the block had proven very good and others pointed out walks as much as 140 feet long by 4½ wide with no joints. This had been in for six years and no trouble as yet.

THURSDAY EVENING.

The discussion on sidewalks was continued and a few new features brought up, the most important of which was that on the manner of construction for walks over archways. Some used a reinforced arch but most used just a concrete arch built on false work underneath. For an 8 ft. span, 4 to 5 inch spring in arch, he used 7 in. I beam 18 lb. to the ft.; for 4 ft. span 6 in. I beam 12 lb. to the foot.

Others were using railroad iron or steel, mostly 56 lb. rail with spans of from 3 to 5 ft.

The fact was brought out that at some places they would not permit railroad iron to be used, at other points it was much cheaper to buy other and lighter steel.

The question of maintenance bonds were brought up, by Mr. Hagar, of Montana, who said his state compelled it to be done. It was suggested that if such was made universal it might be the means of keeping out those who would take a job too low and then put in poor work. This, however, met opposition on the ground that it would cater too much to the big contractor and crowd out many a



THE IDEAL EXHIBIT AT MINNEAPOLIS.

good honest fellow working in a small way, but doing excellent work. The aim of the discussion was to try to devise some way to prevent the putting in of any poor work.

Concrete street crossings were next brought up and Mr. Rowe cited a case where some had been in for five years and had to carry heavy traction and were still good. He had put in a good many. He recommended 6 inches or more of thickness for this purpose. Base 1 to 6 surface, 1 inch of 1 to 1½ mix.

Further argument was then introduced in favor of a solid walk without expansion joints, as well as in favor of making curb and gutter a part of the sidewalk and all in one mash.

It was concluded after discussion that all work should be protected from the sun for a time and a number of good ways for doing this were given by various members.

FRIDAY MORNING.

This was a continuation of the preceding day's discussion and only gave further information on points brought up.

The next meeting place was fixed as Minneapolis at the time provided by the constitution.

Owing to the noise from the preparation going on for the retail lumbermen outside the hall adjournment *sine die* was made at 11 a. m.

The directors got busy at once, and held a meeting at the West Hotel Friday night.



MINNEAPOLIS CONVENTION EXHIBIT.

ATTRACTIVE EXHIBITS.

Whenever any one wished to see an ideal concrete block made they just sailed down the line to the jumping off place where Mr. Sheldon was making them at a great rate on the Ideal Concrete Block Machine, while Mr. F. J. Fitzsimmons was telling them how it was done, how cheap it could be done and why every one should have one, not only to make blocks but to occupy their idle moments, because he said they were ideal in their manner, shape and form.

All those who escaped the wily Fitz stepped

around the corner and allowed John Miller and his partner to try their hand at convincing all who came that the Winner block machine would be a winner for all who purchased it.

A SIDE TRIP.

Friday morning about half of those in attendance took a trip under the guidance and as the guests of Mr. William Porten to see his plant at Minneapolis. This is a good-sized plant well inclosed and heated by exhaust steam. The plant is 210 x 65 feet and one story high. There are fourteen men employed to operate five machines. The Smith mixer is used and overhead tracks are placed in the plant to move pieces the length of the plant. It does everybody good to visit such a plant who is himself manufacturing in a small way. It can not help but give them confidence in the business.

At another time during the meeting a party of about twenty-five went out to see the Northwestern Knitting Works, which was built with reinforced concrete and illustrated in one of the lectures. There were many expressions of pleasure over this visit from those who went. The architects for this building were Bertrand & Chamberlain, the engineer, C. A. P. Turner, and the contractor and superintendent of construction was John Wunder, all of Minneapolis.

THE ATTENDANCE.

Canada.

Nils Erickson, Winner Hollow Block; J. A. Hunter, cement block, Winnipeg, Man.

Colorado.

L. W. Holmberg, contractor, Denver.

Illinois.

P. S. Johnson, R. C. McLean, G. F. S. Sheldon, A. D. Mackay & Co., concrete machinery; C. F. Berger, Atlas cement; A. L. Goetzmann, C. E.; Ernest McCullough, Municipal Engineering & Contracting Co.; Walter Smith, Marble Head Lime Co.; Wm. Seafert, publisher; John O. Parry, A. E. Robinson, Illinois Steel Co., Chicago; Wm. Dickinson, Marquette cement, La Salle; M. O. Sheldon, May Wood.

Indiana.

M. Sheldon, Auburn; C. L. Catherman, Ideal Cement Post Co., Elkhart; J. A. Mitchell, Goshen; S. W. Peet, Indianapolis; F. A. Borst, M. Wetstein and S. L. Kelly, South Bend.

Iowa.

A. M. Balzer, M. G. Rogers, Des Moines; Frank D. Schavil, general contractor; A. A. Loetscher, Dubuque; L. L. Bingham, Olof Johnson, N. A. Lawrence, Estherville; George R. Ross, Grinnell; O. J. Moorhouse, Glidden; Robert Schoeneman, Hull; C. F. Mayer, contractor, Humboldt; R. H. Bowen, Western brick machine, Keokuk; F. D. Milligan, Jefferson; F. D. Christensen, M. R. Summer, Spencer; Geo. Gabler, Fred Lipper, general contractor; F. P. Nelson, City Engineer; R. W. Richardson, Mason City; M. G. Rogers, Newton; Edwin Holt, Northwood; W. G. Hart, Nora Springs; James Wimmer, Perry; S. D. Riniker, Chas. W. Bradley, A. D. Boon, sidewalk blocks; W. G. Shipley, sidewalk; E. Huntington, John Olsen, Rock Rapids; Wm. J. Gormans, S. J. Palmers, Sioux Center; Levi Shell, contractor, Sibley; L. H. Powhan, D. D. Schrader, J. H. Stewart, Stewart Block Machine Co.; D. P. Faus, Iowa Cement Block Machine Co., Waterloo; W. D. Faus, Webster City.

Kentucky.

S. V. Peppel, Rock Products, Louisville.

Mexico.

Ed. L. Pearsall, contractor, Tampico.

Michigan.

John N. Sheehan, Belding; O. B. Singer, D. S. Whittemore, E. G. Holmes, concrete, Detroit; Miles Concrete Block Machine Co., Jackson; W. A. Bruce, for E. W. Seamans, Grand Rapids.

Missouri.

Skinny Wellfed, Coosetown; Fred Roth, contractor, St. Joseph.

Montana.

S. H. Crookes, Ben Hager, Livingston.

Minnesota.

F. I. Crain, contractor; N. Mickelson, Austin; A. Thomas, brickmaker; Joseph Rudge, sidewalks,

Anoka; W. A. Boyd, Bemidji; R. K. Whitley, Brainerd; Wm. Y. Parsons, Clamont; F. A. Watkins, Carlton; J. M. Johnson, P. M. Chandler, W. D. Rowe, Crookston; Charles Stern, cement sidewalks; Ole S. Erickson, cement sidewalks, Comfrey; A. R. Peterson, Deephaven; K. Swanson, Dassel; W. G. Parsons, Dodge Center; Geo. A. Wieland, J. D. Watterworth, contractor; C. P. Frank, S. Dauplaise, contractor; A. A. Williams, gasoline engines; J. W. Hilliard, C. Baxter, Duluth; Nels Loitvedt, Eagle Bend; C. F. Henkel, contractor, Elmore; E. C. Ecker, contractor, Heron Lake; Peter Noshresh, Faunton; Casper Spiess, Wm. Spiess & Son, Fairfax; Warren Smith, contractor, Faribault; L. A. Papke, contractor, Gaylord; O. Nordquist, H. J. Wilkinson, O. J. Dahl, Granite Falls; W. W. Horton, Granville; F. M. Thompson, O. P. Benson, Glenwood; Jas. T. Freestone, cement blocks, Grand Rapids; H. Heinbockel, L. N. Ingalls, Hammond; H. M. Dodge, Hector; A. J. Stecklin, hollow blocks; T. C. Holt, hollow blocks; C. C. McDonough, Joseph Gishen, contractor; Joseph Honer, John Plein, Joseph Mornach, contractor, Kellogg; Wm. E. White, Lake City; O. J. Wicklund, J. H. Engstrom, Litchfield; S. W. Greenwood, Otto Hilzemann, contractor, Long Prairie; A. L. Bistodeau, contractor, Marshall; John Hagen, brick mason, Madison; K. R. Seiler, contractor; W. F. Brigert, contractor, Montevideo; J. J. Spillman, contractor; Robert Zuehlke, Bishman Bros., P. H. Carney, J. M. Coughlan, lime and cement; B. F. Pay, Fowler & Pay, Chas. A. Bistmas, Nels E. Henning, E. J. Whipple, Frank Fowler, cement; J. B. Whipple, sidewalks; John Gack, carpenter; D. S. Evans, C. Ellstrom, concrete contractor, Mankato; S. W. Jonason, contractor; John Norby, Minnesota; S. Swanson, Moose Lake; Claud A. Houston, J. G. Larson, E. J. Fairfield, Jameson & Peterson, Robert Roberts with N. W. Exch. Co., C. Lystad, N. J. Lund, Asst. Sewer Engr., City Hall; Eull & Vaughn, John Strom, E. Williams, C. L. Johnson, Otto Schafer with N. W. Telephone Co., John Sensrad, M. E. Sleeper, Robert Colehour, N. W. Telephone Co.; L. A. Johansen, Alex Walker, John Lindaw, Geo. C. Austin, Samuel R. Wilson, Jr., J. H. Wisnorn, John Enquist, contractor; M. K. Sawyer, F. H. Constant, University of Minnesota; John N. Jager, Otto Schefer, civil engineer; J. R. Farnham, A. H. Persall, Thos. Bue, Asst. Bldg. Inspector; J. T. Quist, John G. Madden, O. Lamppard, Chas. H. Hoofaer, B. L. Kingsley, City Engr. Office; L. Koch, A. Kayser, F. H. Nutter, John Carlson, Ernest Sorenson, Fred G. Dustin, E. S. Boenner, Chas. O. Turner, J. M. Nelson, E. W. Taylor, C. Illstrup, E. B. Newell, C. M. Lorrin, N. Nyham, R. A. Colehour, August Lindelaac, H. O. Davis, L. C. Lorin, A. Heusman, John G. Betzler, Howard Perry, W. J. Rathbone, John Page, Edward Bona, R. E. Hammond, B. W. Mulford, James McLarty, W. H. Lehm, G. W. Hayford, A. P. Oelquist, H. J. Cooper, W. J. Bennett, Chas. F. Wiseman, C. H. Smith, B. L. Hervit, Ole Satherly, J. P. Casselman, C. H. Fagerstran, F. N. Bursell, City Engineer's Office; Harry Fairley, C. P. Enstad, Felix McNamie, C. A. Hall, W. W. Moeller, Thos. Deacon, City Engineer; W. D. Savage, William McCullough, W. W. Livingston, A. L. Wadene, P. G. Anderson, F. Anderson, Owatonna Steel Co.; P. J. Nyvall, H. P. Stone, F. DeSmidt, Frank McDonald, Supt. City Workhouse; A. Anderson, Arthur W. Field, H. T. Berkman, Henry Prinz, Frainort Bros., A. Blomquist, Nels N. Brenna, C. Hield, August Anderson, Pete Anderson, J. A. Young, E. W. Rathburn, A. E. Gregory, Chas. Bams, F. J. Fitzsimmons, Auburn Cement Machinery Co.; L. M. Ostorn, Landers & Co., Chas. R. Shepley, civil engineer; A. N. Lundquist, Thos. Bue, John Olson, George Cook, contractor; John G. Madden, D. F. Clark, C. H. Fagerstrom, H. T. Downs, Lewis Nyholm, E. I. Wheeler, painting contractor; D. S. Bailey, bulider; J. G. Anderson, engineer C. G. W. Ry.; Samuel Vivian, stone and brick; Chas. D. Poore, L. Jepson, L. D. Libby, IXL block machine; J. R. Potter, Wm. R. Hofer, G. N. Ry.; P. G. Speares, Superior Manufacturing Co.; F. D. Furlong, L. V. Thayer, Thayer Cement Block Machine Co.; E. A. Rathburn, contractor; E. I. Anderson, Crown Iron Works Co.; J. W. Robinson, C. L. Smith, H. G. Foote, sidewalk inspector; James G. Houghton, Inspector of Buildings; George W. Brown, contractor; Geo. E. Birmingham, A. Melton, Emil M. Johnson, C. D. Russell, Theo. Dunn, James Leck, general contractor; Edward Anderson, Jas. J. McGuire, F. E. Holden, architect; D. T. Smith, John Al Nelson, contractor; J. P. Beckman, George W. Orff, building superintendent; H. C. Christensen, J. B. Sussner, F. M. Burkley, Wm. E. Earmight, Barnett & Record Co., F. G. Corser, architect; E. F. Stone, E. H. Norblom, O. Lamp-

land, Lampert Lumber Co., John Oaksdol, W. W. Sheridan, foreman of construction; G. A. Anderson, August Holmen, draftsman; A. M. Christenson, J. K. Nichols, contractor; Chas. Ottman, civil engineer; E. J. Bricke, stone; Carl Johnson, manufacturer; H. A. Cate, bulider; F. H. Chapin, H. A. Rodgers, Improvement Bulletin; J. C. Haynes, W. B. Nelson, Steel and Machinery Co.; F. E. Rice, Asst. Engineer, C. M. & St. P. Ry.; P. N. Nelson, Anchor Stone Laundry Tray Co.; Edward Bond, stone machines; George L. Wilson, engineer; H. L. Beckman, paving contractor; S. G. Leslie, contractor; G. R. Dickman, contractor; J. W. Rickey, hydraulic engineer; E. L. Newell, E. W. Pennock, chemist; M. Schumacher, contractor; John Wunder, Arthur J. Leahy, E. Miller, contractor; H. J. Rosethal, carpenter; John Engquist, contractor; W. M. Hemperley, H. A. Gardes, city cement inspector; M. H. Goodson, bulider; H. B. Avery, Minneapolis Steel and Machinery Co.; N. W. Nelson, W. H. Sheeran, Gardner Hardware Co.; Albert Eublom, sidewalks; P. O. Hakanson, Andrews Paving Co.; J. W. Cooper, Guarantee Cement and Stone Co.; Adolph Johnson, Neal J. Nilson, sidewalks; H. E. Walker, Leonard Anderson, Crown Iron Works; N. Nelson, cement sidewalks; John H. Johnson, Olof Hartzell, J. T. Takerud, A. Ferguson, carpenter; R. E. Kirk, C. E.; John M. Hazen, Langdon Stone Co., M. G. Layman, H. J. Boisert, W. H. Ostrander, George W. Cooley, county surveyor; F. W. Cook, stone quarry; H. A. Humphrey, Victor Carison, John Miller, Winner Hollow Block Machine; George Gullork, stone sidewalks; W. H. Cooke, contractor; Ole Westling, tile maker; J. C. S. Glans, carpenter; F. A. Rabe, Superior Manufacturing Co.; C. W. Curtis, Swan Nelson, J. L. Berkman, P. J. Nyvall, Joseph Congdon, E. S. Macgowan, Guarantee Cement and Stone; Matt Brielmann, B. G. Johnson, Crown Iron Works; William G. Bassert, contractor; B. L. Hewitt, Thayer Cement Block Machine Co.; J. C. Granley, concrete; F. M. Henry, C. E.; J. L. Alton, Alexandria; J. A. Jeffery, Menzel & Jeffery Foundry; G. C. Chambers, U. S. Gypsum Co.; H. D. Hunter, Broum L. Box, cement blocks; F. W. Ashanden, H. A. Hunter, Manitoba Cement Co.; O. W. Getshell, C. E.; S. B. Burchard, F. W. Farrington, U. S. Gypsum Co.; C. H. Benson, Pat Carr, Wm. Devine, E. F. Ericker, J. W. Lindstrom, architect; W. M. Mitchell, A. L. Wyman, Axel Anderson, brick manufacturer; A. W. King, dealer; George E. Logia, Miracle Press Stone Co.; O. W. Miracle, Miracle Pressed Stone Co.; Geo. A. Welsh, Improvement Bulletin; W. S. Hunt, J. H. Bergman, sidewalks; J. M. Tates, W. E. King, T. S. Armstrong, C. Canfield, specialty salesman; P. K. Thompson, W. P. Linkham, Fred H. Hall, Fred Field, Nels Johnson, F. L. Williamson, J. A. Doerfler, John A. Weedall, L. C. Lane, George J. Betzler, T. J. Noonan, Arthur Holmlund, Arthur W. Field, E. H. Bassett, J. Lampert, J. S. Wakeman, deputy buliding inspector; Al. J. Huff, J. A. Walter, contractor; all of Minneapolis.

Ernest Puhlmann, contractor; W. C. Miller, New Ulm Stone Co.; C. D. Higgins, contractor, New Ulm; P. Parsons, contractor; C. O. Andrews, stone, Northfield; John Beach, Hammel Bros. & Anderson, N. P. Peterson, J. H. Viner, Owatonna; A. N. Lundquist, boiler inspector, Otter City; J. M. Ranger, Pelican Rapids; A. B. Ekman, Roseau; Jos. Shimek, Renville; A. Roler, St. Leo; Albert Anderson, St. James; G. A. Carison, St. Peter; Ed. Carlton, sidewalks; O. H. Olsen, W. B. McPherson, John Sandquist, Stillwater; A. Gruber, contractor; J. D. Morgan, civil engineer; John Heilmann, contractor; L. C. Brown, granite manufacturer; S. S. Chute, Karl Kropp, contractor; A. E. Morgan, drainage engineer; Frank Porwall, contractor; F. X. Lorinser, F. J. Lorinser, Gruber & Co., St. Cloud; F. H. Ellerbe, buliding inspector; A. P. Perchem, Edward Peterson, court house; T. W. Brennon, F. A. Plummer, W. W. Bowe, K. Gillush, C. P. Gibson, J. T. Harrington, James Wallace, McAllaster College; William Poryen Co., F. W. Burkley, J. Aug. Neilson, O. N. Hoefer, E. J. Johnson, James M. Welsh, Geo. W. Oakes, W. S. Darby, Gust Pederson, F. M. Williams, Otto Hoefer, Geo. Swanstron, John Wharry, N. W. Lime and Cement Co.; Frank Lee, E. P. Symoncs, civil engineer; F. B. Hart, contractor; Lawrence Hope, U. S. Batson, bridge superintendent; C. A. Winslow, assistant engineer, department of public works; Charles Skooglund, contractor; Eugene J. Sigwalt, N. W. Lime and Cement Co.; J. August Nilsson, T. H. Prince, R. E. Patterson, contractor; M. T. Roche, Alpina Portland Cement Co.; Wm. Porten Co., block manufacturer; L. P. Wolf, civil engineer, St. P. & O. Ry.; Samuel Barnes, D. L. Bell, cement dealer; J. W. Pansens, N. P. Ry.; T.

B. Prince, E. A. Upham, A. R. Starkey, assistant city engineer; F. A. Plummer, Hamlin Block and Stone Co.; Z. B. Heusters, N. G. Rhodes, John Turnbull, contractor; G. E. Ingersoll, Contractors' Supply and Equipment Co., St. Paul; Frank Jackson Co., Joseph Kraitinger, Frank Jahn & Co., A. C. Ochs, brick manufacturer; Joseph Kreitinger, contractor, Springfield; A. P. Bergeson, Willmar; W. H. Jackson, White Bear; E. W. Cutler, James L. Ramage, Worthington; Leonard Schaf, L. J. Lund, Wadena.

North Dakota.

J. H. Paxton, Ashley; J. J. Baskerville, contractor, Cando; T. M. Putnam, dealer; J. P. O'Leary, A. McKinnon, Carrington; W. S. Lowman, Casselton; Rogers & Co., Courting; F. W. Zimmerman, machinery, Cogswell; G. H. Tadd, W. S. Engle, concrete blocks, Enderlin; W. H. Compton, W. W. Horton, contractor; S. Birch, contractor; Ira Eddy, Chas. W. Connor, Fargo; A. E. Lowe, Forest River; Geo. Elmstie, Peter Sorenson, Louis Hansen, (N. D.) Pressed Brick Co., Devils Lake; J. C. Burnes, Glen Ullin; R. E. Roberts, sidewalks, Grand Forks; H. B. Waite & Co., Harry; H. L. Stanley, contractor, Hope; G. S. Williams, concrete; George Lutz, Jamestown; M. H. Severson, Ed. Peterson, Lisbon; Ed. Iverson, plasterer, Windom; Anton Evenstad, Lakota; George H. Ladd, contractor, Oaks; Ole Hansen, Milnor; Mandan Mercantile Co., Mandan; Geo. Van Tuyl, Eugene Teutsch, Minot; Orson B. Poore, chemist, Pembina Portland Cement Co., Milton; W. J. Thompson, Page; E. Herwick, Park River.

New York.

E. D. Boyer, Atlas Portland Cement Co.; L. O. Clark, Ann Street; E. L. Siverson, B. L. Swett, Atlas Portland Cement Co.; L. A. Clark, A. M. Pearson, F. W. Scott, Miracle Press Stone, New York City.

Pennsylvania.

Prof. R. L. Humphrey, C. E., Philadelphia.

South Dakota.

D. C. Culvert, cement contractor, Aberdeen; Peter Hallen, C. A. Johnson, Brookings Cement Co., C. H. Atkinson, cement contractor, Brookings; Walter M. Jaehing, E. Russell, Britton; A. I. Darnall, block manufacturer, Castlewood; J. H. Stevens, Chamberlain; F. B. Grimshaw, Clark; H. R. Ledahl, Lake Preston; J. A. Deragison, Ramona; L. D. Merrick, W. M. Parr, L. Halvorsen, Revillo; H. F. Stolte Gus Nelson, brick mason; H. F. Stolte, Redfield; T. T. Stuverud, Sisseton Stone Co., Peter Lanster, Sisseton; A. R. Priest, E. W. Dow, perfection Block Machine; J. T. Simmers, Sioux Falls; Chas. B. Kennedy, Madison; G. Scheurenbrand, Mitchell; Jas. Miracle, Gust Swanson, Milbank; George W. Carpenter, Arthur Gray, contractor; Lee Stover, L. E. Brickell, Geo. W. Carpenter, Watertown; Wm. G. Ladd, Webster.

Wisconsin.

E. E. Smith, Barron; J. L. Anderson, Chippewa Falls; H. L. Stone, Delavan; Ole Arnstad, J. W. Ross, Eau Claire; A. W. Skundberg, Galesville; H. J. Baldwin, Glenwood; I. L. Bonniwell, Hartford; Schuette Cement Construction Co., H. E. Murphy, Manitowoc; F. J. Lang, Mayville; E. F. Ronadke, J. R. Berthelet, Milwaukee Cement Co., Chas. Weiler, F. C. Bailey, Western Lime and Cement Co.; J. P. Sherer, Milwaukee, Whitnall & Rademaker Supply Co.; F. W. Hadfield, National Building Block Co.; Edward Bogk, Ricketson Mineral Paint Works, Milwaukee; Thomas Manion, Thomas Manson, Prescott; F. M. Ubruct, Valdemar Gram, bricklayer, River Falls; William McCann, cement, Rice Lake; J. W. Maxon, contractor, Stevens Point; H. E. Speakes, lime and cement, Superior; W. J. Zochert, Chas. A. Nutter, Gust Forsgreen, Wausau.

The Hummelstown Quarry Co., of Palmyra, Pa., will soon begin the manufacture of sand-lime brick. A new building 280x140 feet will be erected for the purpose and refuse stone will be largely used.

The Lafayette Gravel and Concrete Co., of Lafayette, Ind., has been incorporated. Capital stock \$50,000.00. C. F. Hunt, Willard Robertson and C. R. Flynn are the incorporators.

Burke-Halligan Construction Co., of Buffalo, N. Y., has been incorporated with a capital stock of \$25,000.00. The company will manufacture concrete and fire-proofing. M. J. Burke, J. J. Halligan and Kathryn Burke are the directors.

First Annual Session of the Miracle Pressed Stone Co.

A sort of side issue of the cement products convention at Minneapolis, the Miracle Pressed Stone Co. held the first annual meeting of its employees, providing a room where the various employees could get together and discuss the various problems connected with their business, and read and discuss papers on the various phases of the business.

One of the features of this gathering was a banquet set by the Miracle people, at which the toastmaster, A. N. Pierson, of New York, presided and demanded that every salesman sing a song, make a speech or build a block house.

The following menu was served to a table set for thirty covers:

MENU	
Air Space Soup	
Bread Sticks	Cemented Celery
Fish Turbit with Hammered Face Cheese	
Wafers	
Roast Lamb with Fire Proof Mint Sauce	
Buttered Rolls with Continuous Air Spaces	
Potatoes Garnished with Smooth Face Peas	
Indestructible Olives	
Tomatoes Stuffed with Rock Faced Chicken Salad	
Tea Room Sandwiches	
which Become Hard with Age	
Frost Proof Vanilla, with Hot Chocolate Sauce	
1 to 4 Mixture	
Cake with 30 per cent. Air Space	
Heat Proof Coffee	
Portland Cement Salted Almonds	
Toasted Triscut, Miracle Block Cheese	

On Friday evening their New York representative gave a smoker to the balance of the employees, and the Miracle Co. extended the invitation to all of those present who were using Miracle machines.

For Concrete Contractors.

The John R. Dowes Lumber Co., Phillips, Wis., will in the near future, build a bridge and wish to close the contract for same within the next thirty days, and will be glad to give specifications to concrete contractors and receive bids from them at once.

Prospective Sand Brick Plant.

Captain W. H. Becker, of Menomonee, met the citizens of Eau Claire, Wis., last week with a view to arranging for a stock company for the purpose of manufacturing sand-lime brick at Eau Claire. There is plenty of sand available at this point and no doubt there will be a plant started at an early date.

Through the Fire.

LITTLE ROCK, ARK., January 20.—The huge warehouse of the Little Rock Furniture Manufacturing Co., which was built for the most part of sand-lime brick, has been destroyed by fire. Insurance people were inclined to be prejudiced against the new material on account of the brick being what they termed an experiment, and were afraid that it would not stand heat and water. All of the walls that were built of white brick remain after the fire in perfect condition, while those portions of the building in which red clay brick were used have crumbled and fallen away. Subsequent tests have found the white brick to be perfectly sound and the solid walls built of this material are still intact, although that portion of the structure was exposed to the hottest part of the fire.

Another Difference of Opinion.

WILMINGTON, DEL., January 14.—Mr. H. O. Duerr, secretary of the National Association of Manufacturers of sand-lime products, sends the following open letter:

In your issue of this month I note an article called, "Difference of Opinion," in which I am quoted. The following statement is made: "The experimenting of these construction firms has cost them good money. Our correspondent believes that it is cheaper to buy a plant where this experimenting is thrown in with the contract, than it is to acquire the knowledge by costly experiments."

This remark is one which is frequently made by the machinery and plant men, and has been brought to my attention on a number of occasions.

My observation has been, however, that there seems to be a greater tendency upon the part of those desiring to go into the manufacture of sand-lime bricks to make independent investigations and to build plants on independent lines. The reason for this seems obvious. It is undoubtedly true that every location has its own peculiarities which must be taken into consideration in the building of the plant. If the machinery people could afford to keep in their employ engineers who could give their undivided attention to the local conditions they could unquestionably build a better and cheaper plant for the client than he could build himself. To do this, however, the engineer should also have had some practical experience in operating sand-lime brick plants. The business is still such a new one that there are not many such men floating about.

In addition to this the manufacturer of machinery can hardly afford to put a man on such work without the assurance of receiving the contract after he has made his investigations, as it would add very materially to the machinery manufacturer's expense to have such men in the field.

Up to the present the machinery manufacturer has not been much better off than the individuals intending going into the manufacture of sand-lime brick, so unquestionably we are all learning.

I do agree with your correspondent that the machinery men can put up cheaper plants than the individual or independent people can do, but the question is, has he done so? And if he has, has he given all that he should to make a complete plant? As yet I must confess that I have not seen a complete plant in operation. There seems to be something lacking in every plant to make the product what it should be.

Your correspondent further states that it would be better to make the contract for the complete plant with a guarantee that the plant should be complete and furnish a certain desired product and output. I agree with him, but the question whether the machinery men can afford to do this under present conditions, as there is such a wide difference of opinion among men as to whether a guarantee has been fulfilled or not.

In conclusion I would suggest that the average individual going into the sand-lime brick business will undoubtedly do much better by contracting for a complete plant with satisfaction guaranteed, if he can get it, for he will then at least know how much money he is required to spend, and the machinery men will get much better results if they equip themselves with the necessary talent and information to enable them to furnish a plant with such guarantees.

Artificial Stone From Glass.

Artificial stone is manufactured in England from alkaline silicates, commonly known as soluble glass. The latest formula that has been successfully tried is the following: Limestone, 100 parts; silicate of soda (420 Beaume), 35 parts; fine quartz sand, 120 to 180 parts; coarse sand, 180 to 250 parts.

The Koenig Concrete Co., Milwaukee, Wis., has just been organized. Capital stock, \$15,000.00. M. D. Kelly, Chas. H. Koenig and Peter Koenig are the incorporators.

The Rochester Composite Brick Co. will soon be organized at Sea Breeze, N. Y., for the purpose of manufacturing sand-lime brick.

The Tulsa Cement Stone Manufacturing Co. has been incorporated at Tulsa, I. T., with a capital of \$20,000.00. The company will manufacture artificial stone, cement, lime etc.

The Nevada Artificial Stone Co., of Nevada, Iowa, has been incorporated with a capital stock of \$10,000.00. R. A. Frazier and others are the incorporators.

Clay.

BRICK MANUFACTURERS IN CONVENTION.

The nineteenth annual convention of the National Association of Brick Manufacturers convened on February 1, at the armory of the city hall, at Birmingham, Ala. Between three and four hundred delegates were in attendance, aside from many ladies. Vice President J. M. Blair, of Cincinnati, Ohio, presided, President W. S. Purlington, of Galesburg, Ill., being absent. An address of welcome was delivered by Mayor Drennen. The president's report showed the association to be in a prosperous condition. Aside from a banquet a number of excursions to various points will be made. The convention will continue until February 11.

AMERICAN CERAMIC MEET.

The American Ceramic Society held its seventh annual meeting on January 30, continuing three days, in the parlors of the Hillman Hotel, Birmingham, Ala. About sixty members were present. A number of interesting papers were read and nineteen new members taken in. The report of the secretary showed the association to be making progress and its influence spreading. There were a number of social features in which a number of ladies participated. The following officers were elected for the coming year: W. D. Gates, of Chicago, president; Ellis Lovejoy, of Columbus, Ohio, vice president; Edward Orton, of Columbus, Ohio, secretary; Stanley G. Bart, treasurer; Walter Fickes, of New York, manager.

Incorporated With Large Capital.

The Louisville Fire Brick Works, at Highland Park, Ky., was incorporated on February 1, with a capital stock of \$150,000.00. This includes the large plant at the above place, also the clay mines in Carter county, Ky. The officers are as follows: K. B. Grahm, president; C. A. Parker, vice president; Charles E. Parker, secretary, and M. P. Dehoney, treasurer. All of the above parties are residents of Louisville. Mr. Grahm, who has been running the plant for the past seventeen years under the above title, will be the largest stockholder and retain the active management. The change was made owing to the rapid increase in business and the desire to enlarge the scope of the industry. The duties had become rather arduous for one man, and the fact that additional help will be given will greatly enlarge the opportunities for the growing business of this company.

Briquette From Plastic Fire Clay.

COFFEYVILLE, KAN., January 8.—J. M. Gillam writes us, saying: "Under separate cover I send you sample briquette made from my plastic fire clay. Briquette is pressed light and burned in a common up-draft kiln along with common red building brick and has not the color it would have had, had it been burned at a considerably higher temperature."

The Minnesota Ceramic Co., of St. Paul, Minn., has been organized with a capital stock of \$150,000.00. The company will manufacture brick and clay products. James J. Smart, of St. Paul; Fayette D. Kendrick, of Bismarck, N. D.; Clarence B. Little, of Bismarck; William H. Egan, of St. Paul, and Fred A. Defiel, of St. Paul, are the incorporators.

The North Birmingham Fire Brick and Proofing Co., which was recently organized at North Birmingham, Ala., has just about completed its plant and has already secured a large contract for the Tennessee Trust Building, at Memphis, Tenn. The clay used is from the Bradford mines, twenty miles north of Birmingham.

Plaster.

The National Plaster Manufacturers' Association.

Meets Semi-Annually.

H. E. DINGLEY, Syracuse, N. Y.,President
A. H. LAUMAN, Pittsburg, Pa.,First Vice President
L. G. POWELL, Toledo, Ohio,Second Vice President
JAS. LEENHOUTS, Grand Rapids, Mich., Third Vice President
ALEXANDER FORRESTER, Cleveland, Ohio,Treasurer
E. H. DEFEBAGH, Louisville, Ky.,Secretary

Official Organ, ROCK PRODUCTS.

DECIDE TO REORGANIZE.

Enthusiastic Support for the New National Plaster Manufacturers' Association.

CLEVELAND, OHIO, February 6.—The National Manufacturers' Association met February 6, at 1:30. The attendance was not as large as in the later days of the week when the manufacturers met in informal meetings to work out plans for enlarging the scope of the association, the object being to incorporate the present membership in the National Association into a new organization composed of manufacturers of plaster from Maine to California.

The plan of organization is in the hands of a committee composed of President Dingley, S. L. Avery, president of the United States Gypsum Co., James Leenhouts, secretary of the Grand Rapids Plaster Co., and O. F. Ferriman, of Cleveland, O.

There was much enthusiasm among the delegates and plaster men generally in attendance at this meeting, and better prospects for a new organization than ever in the history of the trade.

The work of the past has accomplished a good deal in social ways, and recognizing the needs for co-operation of every one in the business, the officers and manufacturers in the old organization concluded to throw down the bars and resign from their offices and start over again, not because the organization has not worked, because it has, but without the largest factors in the business it was not able to accomplish the possibilities of the organization, and with a unanimous vote resolutions were passed of a character to make it possible for every manufacturer in the business to join and to secure the co-operation of the whole trade.

The National Plaster Manufacturers' Association had a good balance on hand, and its membership practically were out in force, except where great distances interfered. The committee have had assurances of the co-operation of the largest and best, and, in fact, all representative men in the trade and you can expect soon to hear of a great association being formed.

One of the resolutions passed at the meeting was the appointment of a committee to secure the co-operation of other bodies, to obtain, if possible, change of classification on plaster. The representatives of the Secretaries Association of the Lumber Trade asked the co-operation of the plaster men in reciprocity, for holding up their hands in carrying out the "We Sell to Dealers Only" plan. Mr. Gorsuch and Mr. E. F. Hunter, of this committee, each commented favorably on the co-operation of the Western manufacturers with their associations, and hoped that it would be possible for the Eastern plaster men to see their way clear to work with them. A motion of thanks of the association was passed unanimously for the interest these gentlemen were taking.

In discussing the local situation, on motion of O. W. Ferriman, the chairman was authorized to appoint a committee of three with the secretary as one, to bring about local organization in different states and to see if better methods could not obtain in our business.

On motion the Committee on Local Associations was increased to five and was composed of Mr. Black, Mr. L. E. Fishack, Mr. M. E. Loose, Mr. C. F. Towne and Mr. W. E. Shearer.

The meeting adjourned at the call of the chairman. The first day's meetings were presided over by Vice President James Leenhouts. On Tuesday morning, with a large number of other plaster men, came President H. E. Dingley.

Operations Again Delayed.

NEW ALBANY, IND., January 31.—The New Albany Wall Plaster Co. have experienced several back sets so that operations have been delayed several weeks longer. Their plant is almost completed now, however, and they expect to shortly have their product on the market. They have already had a number of inquiries and the indications point to a good business just as soon as they are in running order. The continued cold weather has been one of the main causes of their delay, and work has consequently dragged. When their plant is completed it will be one of the best in this section.

Plant for Grand Rapids.

The Acme Cement Plaster Co. is beginning the work of establishing a plant at Grand Rapids, Mich. The company now has mills at Acme, Texas; Marlow, Indian Territory, and Laramie, Wyo.

Recent purchases gave it control of about 200 acres of what experts pronounce the best plaster land in the Grand River valley. Work on a shaft house and rock shed has already begun. The latter building will be used to care for the rock as fast as it is taken from the ground. With the first favorable weather other building operations will be pushed to completion. Mining operations will then begin.

The mill will be one of the largest in the plaster business and equipped with the latest and best machinery. The supply of rock is said to be sufficient to last the plant for 100 years.

The shipping facilities are excellent, the site for the new plant being near the junction of the Lake Shore and Michigan Southern and the Pere Marquette railroads.

A Prosperous Gypsum Plant.

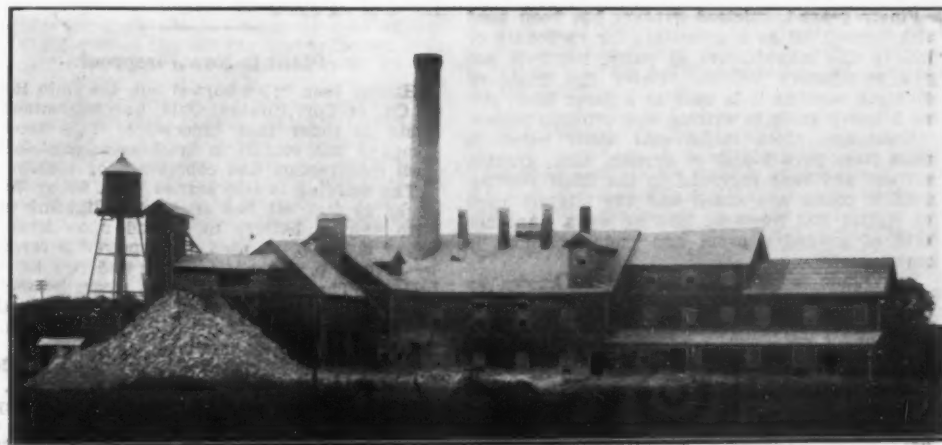
FORT DODGE, IOWA, January 21.—It is probable that Fort Dodge, Iowa, can safely claim one of the newest and most modern calcining plants in the United States. This is the plant of the Plymouth Gypsum Co., which was built and started up in 1893 by the president and manager, L. E. Armstrong. The mill was built for a four-kettle mill, but only three were installed. It is fully equipped for this capacity with the exception that the fourth kettle has not been as yet put in. The mine was opened up about the same time that the plant was built. The company has seventy acres of gypsum with an average thickness of 20 to 28 feet. The gypsum lies about 65 feet below the surface. At the present time the company is only working from 9 to 12 feet through the center of this strata. Wherever it is necessary the pillars may be pulled and the top dropped and the bottom taken up. Operating in the present conditions there is no necessity for timbers. Some of the mines in the district which are all taken in within a radius of about five miles, must of necessity timber. The deposit and plant is located about one-half mile from the plant on the I. C. railroad. Mr. Armstrong is very enthusiastic over hammer grinders or Williams mills, both for raw and finishing, and they are changing some of their equipment so that all grinding will be done in the future by these mills, both on the raw and the finishing end. While a jaw crusher is in use at the present time as a primary means of reduction they are even thinking of taking this out. Mr. Armstrong states that this is the first full hammer system to be installed in a gypsum mill. This company supplies both raw and calcined gypsum, plaster pans and a number of brands of plaster, such as fiber plasters and finishes, stuccos and land plasters. The officers, aside from those mentioned, are M. D. O'Connell, vice president; J. T. Chaney, secretary and treasurer.

There are nine mills in this district, only four of which are being operated at the present time, and even these four are not badly over crowded, which is a natural condition at this time of the year. It is probable that none of the mills are running much beyond half capacity. However all anticipate being under full swing within the next sixty days.



INTERIOR OF PLYMOUTH GYPSUM MINE, MANAGER ARMSTRONG ON THE RIGHT.

Manager Dietz, of the Western Elyria Wood Plaster Co., Waterloo, Iowa, when called upon recently, stated that the plaster business in that section of the country was very quiet, and that one of the facts of the business, and one of the things which caused hard wood plaster to come into disrepute in that section, was the fact that few manufacturers were making a plaster supposed to be a wood fiber plaster. It was practically all sand, and in consequence of this, would sometimes develop weakness and bring censure on all prepared plasters.



GREAT PLANT OF THE PLYMOUTH GYPSUM CO., FORT DODGE, IOWA.

Uses for Gypsum.

In Volume IX, issued by the Geological Survey of Michigan, under the direction of Alfred C. Lane, State Geologist, Part II, which makes up most of the book, is devoted to the gypsum of Michigan and the plaster industry. G. P. Grimsley, the author, first became interested in his subject as a member of the University Geological Survey of Kansas in 1896. Subsequent study in the library and in the field has well qualified him to speak as an authority. His book is a splendid contribution to scientific and historical literature on this subject and he has succeeded in making it highly entertaining as well as instructive.

No chapter of Mr. Grimsley's report will be read with more interest than the thirteenth, in which he describes the many miscellaneous uses to which gypsum may be put, covering a range known to but few. Some of these uses are as follows:

In India powdered gypsum is kept in bazaars as a drug. It is supposed to have cooling properties and a gruel made of it is given in fevers. It is also calcined and used for chewing with betel.

Gypsum is sometimes added to the water used in brewing. The famous Burton ales in England are made with water from wells which pass through gypseous deposits in the Keuper marls of the district.

Gypsum flour is mixed with the poorer grades of wheat flour and used for dusting the moulds in metal casting. The mixture is sold under the name of Corine flour.

As a base of insecticides gypsum is widely used. In Michigan bug plaster is made, which is land plaster mixed with Paris green or other poison and used on potatoes and vines to destroy the insects.

In smelting the ore of granierite, or the hydrous silicate of nickel in New Caledonia, coke and gypsum are employed.

Gypsum is used to protect the lenses of optical instruments.

The white, finely ground, crude gypsum is sometimes used for adulteration purposes. It is mixed with white lead paints, making a cheap substitute for the lead. It has been detected in flour, sugar, candy, baking powder and other compounds.

Chalk crayons for blackboard and carpenters' use are now commonly made from gypsum. The ground uncalcined gypsum is mixed with other ingredients according to a secret formula, pressed and dried and packed in boxes.

Various methods have been devised to harden blocks of gypsum to imitate marble. Michigan gypsum has been hardened at Chicago, but on a small scale. A number of patents has been issued covering this process.

A small amount of gypsum added to Portland cement retards its set and apparently does not injure its tensile strength. Large amounts will retard the set of the cement and also give to it a greater tensile strength, but after a time the set cement will begin to check.

The finer grades of calcined gypsum are sold as dental plaster and as plaster of Paris for the manufacture of casts and molds. It is also used for white finish on the walls of buildings.

The use of gypsum in wall plasters of various kinds is exhaustively treated in Mr. Grimsley's report.

Finely ground, calcined gypsum has been used with linseed oil as a substitute for carbonate of lime in the manufacture of putty, but does not give satisfactory results. Under the name of Michigan whiting it is used as a paper filler, giving a better finish to writing, and printing papers.

Alabastine, often called cold water paint, is made from pure blocks of gypsum rock, ground, calcined and then reground to the finest powder. Metallic colors are added and the mixture used for tinting and frescoing interior walls. Another form of ground gypsum and metallic colors is known as lieno.

In Vienna a new gypsum mixture known as trippolite has appeared. Trippolite is said to have double the strength of ordinary plaster. It remains under water without disintegration and can be used as a hydraulic mortar.

Gypsum is used in the manufacture of molds for various pottery designs, and this method of making pottery is taking the place of hand turning.

Plaster made from gypsum is used in polishing plate glass.

The use for interior relief and art decorations of staff made from gypsum plaster and fiber has increased to a remarkable extent since the Chicago Exposition.

Gypsum plaster is sometimes mixed with sawdust and molded into blocks, which are then readily nailed to the wall for finish.

Attempts have been made to manufacture Portland cement and sulphuric acid from gypsum. It is claimed the process will cost about the same as the ordinary method of making cement and that there will be sulphuric acid as a by-product for profit. But according to Mr. Grimsley the process has not gone much beyond the experimental stage.

Increases Its Capacity.

The Ohio Wood Fiber Plaster Co., of Columbus, Ohio, announces that after running out a reserve stock of some 300 tons of mastic wood fiber plaster, it has shut down for two weeks so as to install some new drying and elevating machinery and thus increase its output. The mill as originally constructed is inadequate to supplying the great demand there has been for the company's plaster. Facilities will be extended so as to add additional mixers for the spring business. However, indications now are that the plant, even as reconstructed, will be taxed to the utmost to fill all the orders that come to it.

The Sackett plaster board is being largely used in Columbus in connection with the mastic plaster, giving perfect satisfaction and making a wall that is almost fireproof.

A Marvelous Growth.

A concern that has grown to big proportions in an astonishingly short time, is the Wheeling Wall Plaster Co., of Wheeling, W. Va. In May, 1900, this company was making ten tons of plaster a day in a small, rented shed. Its capital was small and the members of the company had to hustle to dispose even of the limited output.

To-day this concern is considered one of the leading plaster and builders' supply companies in the country. Though its capacity is now 80 tons of plaster a day, it can scarcely fill the orders that come to it. So much for five years of good management in which the policy of supplying the best for the money has never been lost sight of. Builders' supplies form a leading department of its business. The company reports a good year in 1904 with a bright outlook for the present year.

New Indianapolis Company.

Through the efforts of W. H. Orr, the Mastic Wood Fiber Co. has been organized in Indianapolis, succeeding the Indiana Wood Fiber Plaster Co., of that city. The offices and factory are at 1705 W. Washington Street. The officers of the new company are: William P. Jungclaus, president; John H. H. Stahl, vice president; W. H. Orr, secretary and general manager; Thomas V. Thornton, treasurer. The company is incorporated. It will engage in the manufacture and sale of the plaster and other building material.

With men like Mr. Orr and his associates in charge the new company is certain to prosper and will unquestionably prove a big factor in supplying the ever increasing demand for the new plaster which has so many points of superiority over the old. It starts off most auspiciously.

Plant is Now Fireproof.

Having been twice burned out, the Ohio Retarder Co., of Port Clinton, Ohio, has determined not again to suffer that experience. This time the company has rebuilt in brick and concrete with steel construction and concrete floor arches.

The building is two stories high, 40 by 70 and 30 by 40 feet. It has an electric lighting outfit, with storage battery to depend upon when the power is not being used. The power is furnished by a 70 h. p. automatic engine and two 100 h. p. boilers. The office is detached, steam heated and lighted from the company's electric plant. About 600 feet of siding has been constructed on the premises.

The company is greatly pleased with the efficacy of Rock Products as an advertising medium. To quote directly: "We believe in the efficacy of Rock Products and we are glad to note the ever increasing use made of its columns by the building trades, and to note the largely increased circulation among all lines of trade connected with

rock products and building materials in general."

The company has contracted with one concern for all the retarder required in over a score of plaster mills. Its patrons extend throughout the United States with many in Canada and England.

Wood Fiber Plaster in Greater Demand.

In the manufacture of plaster in recent years some notable progress has been made. This is particularly true with regard to the use of wood fiber as a substitute for sand and lime. Being light in weight, flexible and a non-conductor of sound, and neither affected by heat or cold, it has grown in popularity until it has come into general use.

To a large degree it has taken the place of common lime and cement plasters, being only about one-half as heavy and going at least twice as far. One thin coat is all that is usually required. The general estimate is one ton of wood fiber plaster for 150 to 160 square yards of space; this of course, is true when the plasterer is economical and the other conditions are favorable. The time saved in preparing this plaster for use is very short, which is a consideration that the builder must bear in mind.

When it is noted that new plants are continually being put in operation and those already engaged in the manufacture of hard wall plaster are enlarging their output, it can readily be understood that the possibilities of this commodity have only begun to be realized. Within a few years it is more than probable that wood fiber hard wall plaster will be so generally used that the more common grades will be practically antiquated. The good points in its favor are becoming known and appreciated to a greater extent among users of plaster, and its durability is only another proof of its right to this deserved popularity.

A New Mortar.

W. H. Williamson, of Dayton, Ohio, has patented a new mortar which is said to resemble marble when dry, and is used for plastering walls and ceilings as well as the finishing work. The color is gray. Columbus, Ohio, capitalists are interested and will likely build a factory for the manufacture of the new mortar.

SOMEWHAT PERSONAL.

Captain D. McL. McKay, the genial vice president of the Consolidated Stone Co., who keeps his office at 322 Monadnock Building, Chicago, when he is at home, but who is well known in every part of this land as the very able apostle of Bedford oolitic limestone, was a caller at our office recently. In a business way he says the most interesting things about building stone.

Wm. Wirt Clark & Son, of Baltimore, have secured the services of Mr. Frank O.K. Kemp, who has assumed the charge of the architectural terra cotta and front face brick departments of that concern.

Mr. George B. Kirwan, of the Hunkins-Willis Lime and Cement Co., St. Louis, spent a day in Louisville after the Indianapolis cement users convention. He was full of business as usual and laughed about the Sunny South and zero weather at the same time.

H. J. Votaw, who formerly was with the Leader Manufacturing Co., of Decatur, Ill., is now connected with the J. D. Fate Co., who manufacture cement block machinery at Plymouth, Ohio.

George B. McGrath, of the Ohio Quarries Co., of Chicago, was a visitor in the Southland recently and he thought he had made a mistake and gone to Minneapolis, because of the weather. But he was telling of the beauties of Ohio grindstones and he convinced people that they are the real thing.

Among our callers this past month was Mr. Geo. H. Keyes, of the Aetna Powder Co., Tribune Building, Chicago, Ill. He visits among the stone trade in Indiana, Kentucky and Michigan, and reports prospects for 1905 very good. He said: "I suppose you know that Mr. F. W. Penfield, who has been in charge of the sales department of our company and is one of the brightest men in the powder business, has been made treasurer, but will continue to manage the sales department. He succeeds Mr. R. M. Fay, our general manager, who died in November last. Mr. Addison G. Fay was elected vice president and will direct the affairs of the company as did his brother in the past."

Side Talk.

The Advance Diamond Saw.

This saw which is fully patented, is manufactured by Mr. Willard F. Meyers, who has, since 1887, been engaged in building and repairing stone yard machinery, and who has had a wide experience in the same, as is evidenced by the many and diversified localities in which his work is to be found.

It is called The Advance saw for the double reasons that it is a great advance on anything yet achieved in that line, owing to its smooth and rapid work, and also to the fact that the blade when in operation advances or travels toward the stone; both of which reasons unite in making the name a very appropriate one.

It will joint stone up to 14 ft. by 4 ft. 6 in. by 3 ft. thick on either car without interfering with the loading or unloading of the other car. The saw can be raised above the top of the cars to any height up to 5 ft., giving a great range when putting in checks, etc., in high or low stone. By using the perpendicular feed to certain depth and then stopping the same and using the horizontal feed it will put in sinkages for panels, etc., when it is desired to do cutting inside the margin of a stone. By locking the cars together and loading on both cars it will rip a stone 13 ft. across, or joint a platform 13 ft. by 14 ft. if required.

The two cars which go with the saw have full roller bearing boxes. The axles are joined by chain and have double sprockets on each of the three axles, and the cars can be moved by means of a double dog lever at one of the axles. The chain connecting the three axles prevents the wheels from slipping.

The horizontal and perpendicular feed will cut from 2 inches to 16 inches per minute, and can be changed to any fraction between these points while the saw is running, and taking into consideration the horizontal and perpendicular feeds with the graduations of same, and the two horizontal and two perpendicular movements, both quick adjusting, the saw is nevertheless very simple as to its mechanism and quite devoid of all complicated parts.

All bearings on the driving shafts and the saw spindle and other fast running journals are made with oil cellars, and all journals carry automatic ring oilers. All the principal gears are cut. The nuts on the screws are of phosphor-bronze inserted in cast iron shells, making it easy to replace them when worn.

The main frame is of steel channels well braced by steel angle braces, bridges, etc.

The blades are of the very best quality attainable, and the fact that they are made by Henry Disston & Son, of Philadelphia, is in itself a sufficient guarantee as to their high quality.

The saw can be moved in or out to the work or hoisted or lowered by simply using the levers for that purpose which are shown at the end of the machine in the picture on page 104, with a man shown operating them.

Another special feature which is Mr. Meyers' recent invention is the adjustable plates which do not touch the blade but hold it steady when it is running. This is accomplished by the feed water (the pipe for which may be seen hanging from above) being carried between the plates and the blade, forming a water cushion for the saw, and this steadies the blade and puts a very good aris on the stone.

As heretofore said the saw advances toward the stone with the result that the stone is not pushed away, but the motion of the blade holds the stone in position as the friction when cutting draws the stone to the blade, whereby a very small stone can be cut without having to fasten it in any way to the truck.

The machine takes stone or marble from the planer and joints it ready to set in the building. The new addition to the Bellevue-Stafford Hotel in Philadelphia, was all jointed by one of these saws.

Messrs. Norcross Bros. Co., who are building the New York City library of Vermont marble, are using two of these saws for the jointing.

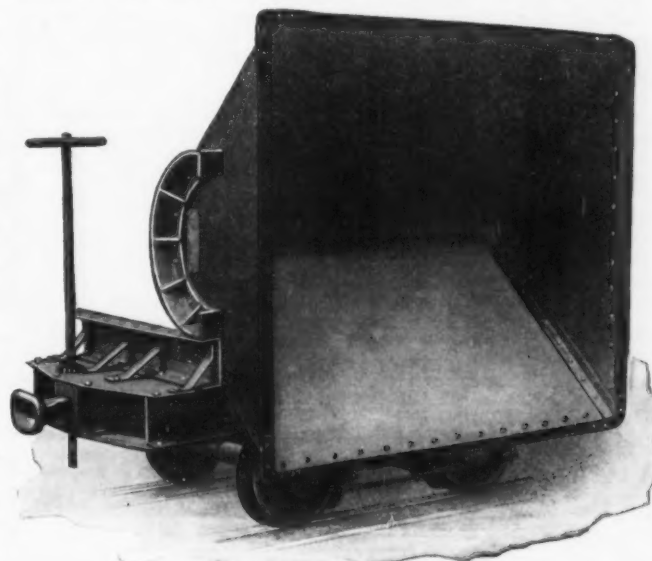
The stone used in the Indianapolis Federal Buildings which was finished by Wm. Bradley & Son, of Bedford, Ind., was jointed by this saw, and it was the only saw so used in connection with the building.

Messrs. B. A. and G. N. Williams have been using one of these saws for the last nine months jointing South Dover marble, with remarkable success.

Mr. Meyers has also furnished saws to the following firms, all of which speak very highly of them: John Cullen & Co. 107th Street and First Avenue, New York; Wm. Bradley & Son, Butler and Nevins Street, Brooklyn, N. Y.; W. H. McWhirter & Co., Camden, N. J.; Fred Andres & Co., Milwaukee, Wis.; John Gillies & Son, Long Island City, N. Y.; Shea & Donnelly, Lynn, Mass.

The mode of inserting the teeth in the blade is very simple, the spaces being V cut, and one rivet used to hold the tooth. The diamonds are set in moulds, under Mr. Meyers' patent, and the steel is cast around them, the shrinkage of which holds the diamonds very firmly and there is no danger of losing them.

As to the resetting of the diamonds Mr. Meyers advocates that this should rather be done frequently than to endeavor to use them for any unreasonable length of time, as no diamond teeth will do quick and good work when the diamonds become



WONHAM-MAGOR ROCKER DUMP CAR.

dull or flat, and good sharp teeth are indispensable to the producing of good work.

Mr. Meyers has an establishment equipped with all facilities for making teeth at short notice of the very best quality, and in any styles to suit customers.

The V-Body Dump Car.

We give below an illustration of a rocker dump car, as made by the Wonham-Magor Engineering Works, whose plant is at Passaic, N. J. This car is mostly used for carrying sand, clay, earth, stones, ashes, coal, etc. As will be noted, the car sets very low to the track, giving an acute and clear angle of dump. The dumping arrangement makes dumping extremely easy and as the body in course of operation is constantly moving out from the center of the car, the load is thrown well clear of the track. It is easily operated by one man.

The car is of strong and simple construction, with heavy channel runway, cast iron rockers, spring pedestals and malleable spring draw-bar. A number of the cement plants and quarries in the East have this character of car in use at the present time and it can be made to suit requirements as to gauge, capacity, size of wheels, etc.

By addressing the above company at their New York office, 29 Broadway, a complete catalogue descriptive of a full line of their manufacture, which includes portable track, switches, turntables, etc., will be sent you.

The Western Cement Co., Louisville, Ky., have issued an attractive little booklet, "The Reliability and Economy of Louisville Hydraulic Cement," containing facts and figures of interest to parties who contemplate concrete foundations and the like.

Origin of Diamond Saws for Stone in Great Britain.

Mr. A. G. Grice, of Geo. Anderson & Co., Ltd., of Carnonstie, Scotland, gives some interesting information. For the last fifteen years different engineering firms had been trying to produce a successful diamond saw. By the term "successful saw" we mean one that will cut stone of all kinds commercially. Many firms discovered, to their cost, that to achieve this meant a great outlay of money, with the result that after carrying the experiment as far as they could, they became bankrupt over it. The firm of George Anderson & Co., had also been trying to solve this problem, and after repeated failures, such as trying to set the diamonds by running the metal around them, or sealing them with various metals in the steel sockets with blow-pipes and thereby losing heavily in diamonds, they had practically reached the point of failure that others had arrived at before them, when they developed the idea of sealing them by electricity. This proved to be a complete solution of the difficulty, and from that day to this (which is about five years) there has never been any complaint regarding the diamonds, every one being thoroughly satisfied with the increased length of time they last.

This sealing of the diamonds, though appearing to a casual observer to be a very simple process, is in reality a very nice proceeding and takes weeks and months to learn. After the diamond has been specially prepared and coated, the heat and the pressure have to be regulated and worked in unison to such a fineness, or else the percentage of cracked and useless diamonds will be very great.

As to the very practical question of how long the diamonds last take the average life of them on Portland stone. As much as 90 per cent. last from 8 to 12 months, but in many instances complete sets of diamonds have lasted two years and a half, amongst these latter there are two cases where they are still running after this period.

Following the solving of the diamond question the next important feature to be taken up was to produce a machine that would minimize the handling of the stone as much as possible. The first essential was a mechanism

ically moved table, and the next was a saw blade that could be put to cut at any point of the stone without having to shift the stone or handle it in any way.

To obtain this it was necessary to have the blade move transversely, or across the table. Among the many points that had to be kept in view were chiefly the high velocity at which the saws would run, and the vibration that would necessarily be caused. A great amount of thought and experiment was needed to overcome these two obstacles. Eventually a machine was produced which allowed the blades to be shifted as required, and caused them to run absolutely without vibration.

As any one practically connected with the stone trade knows, the best machine is the simplest on account of the dust, dirt and grit that are peculiar to a stone cutting yard; and this was kept in view to the extent of cutting down all working parts as much as possible, without reducing the efficiency of the machine.

After designing and producing an absolutely successful circular diamond saw, the next business was to market it. At first to mention the words, "Diamond saw" to an English stone cutter made his hair stand on end, and no one could be got to make a first demonstration of the qualities of the machine that had appeared which would practically revolutionize the trade.

Repeated calls and urgings finally induced a London contractor to put one in. It then needed only a few months before the whole of the men in the trade placed orders with the firm for the saws; and now after five years the greater number of them have two and even three saws working.

The same fight had to be gone through with the marble men, with eventually the same result, and in several of the cases we have "repeat" orders for saws for marble as well as for stone. At the present moment orders are in hand for the Carrara

marble quarries of Italy, and also within the last few months a big plant has been installed in Greece.

Perhaps it is as well to mention here something concerning the cutting speed, as there seems to be varied opinions as to what these machines are capable of doing. In Carrara marble the cutting speed on a block 3 feet thick would be from 3 to 4 inches per minute; meaning that a block 6 ft. long by 3 ft. thick would be cut through in 18 minutes.

In response to the question as to how it was that he came to this country, Mr. Grice said that one of the biggest London contractors, Mr. Holloway, came over to America to inspect the stone-working machinery of this country.

On his return to Great Britain he asked one of our firm to call upon him and when Mr. Grice came into his office and asked him if he (Mr. Grice) would have to close his works on account of the superiority of American machines, Mr. Holloway replied, "They can't touch you. Such a thing as a diamond circular saw with diamonds like yours is not known, and if you will take my advice you will get across there at once."

The advice fell on fertile ground and Mr. Grice came over and went through the different cities of the U. S. and Canada.

His first success was with Messrs. Lyall & Sons, of Montreal, for a large circular diamond saw which they put down on a large contract they had at Winnipeg.

His next sales were made with Mr. John Tait, of Chicago, and with Mr. George Dugan and Messrs. Furst & Kerber, both of Bedford, Ind.

After getting many more orders, and seeing what an enormous field there was here for a saw of this description, it was determined by the firm of Geo. Anderson & Co. to start a branch here.

The firm is busy now getting this branch place at 420 Ogden Street, Newark, N. J., into shape, and in a short time they will be in position to cater to the demands of the trade in proper shape.

Merit is Recognized.

A tribute to the excellence of the machinery made by the J. B. Ehrsam & Sons Manufacturing Co., of Enterprise, Kan., has been paid in the decision of the Independent Gypsum Co., of New York City to equip its new 300-ton wall plaster mill in Blaine county, Oklahoma, with the product of the Kansas shops.

Narrow Escape of Prominent Granite Men

Two of the best known men in the granite business at Barre, Vt., Mr. Will Alexander, president of the Manufacturers' Association, and Dan Smith, president of the Barre Quarry Association, accompanied by our Barre correspondent, Henry C. Whitaker, while on their way to the Granite Industries Association meeting at Boston, had a very narrow escape on February 7. Mr. Whitaker, in writing of the incident, said: "We left Barre on the midnight train last night, due here at 8:10 this morning. Got here a little after 2 o'clock this afternoon with practically nothing to eat since our last supper. Up above White River Junction a broken rail threw the two cars back of the engine over an embankment (going full speed). The express messenger had the presence of mind to pull the bell cord before he jumped from the failing car. The engineer used the emergency brakes and we were saved from almost certain death."

INFORMATION BUREAU.

876.—We want information as to the workings of a concrete lime kiln, as to its lasting qualities, etc.

Two of the best known men in the granite business out of cactus plants for the purpose of making a hard wall plaster?

878.—We are in the market for a complete concentrating plant for the handling of copper and silver ores; also for a leaching plant to handle the tailings and desire the names of manufacturers of this class of machinery especially crushers.

879.—We would like to secure the services of a graduate mechanical man with experience in drying machinery and filter and roller presses.

880.—We are in the market for cement block machines.

881.—We desire the names and addresses of manufacturers of Gates' crushers and pulverizers.

882.—We are well prepared financially and are in the market for the very latest and best equipments that money can buy.

Wanted and For Sale

One insertion, 25c a line; Two insertions, 50c a line; Three consecutive insertions with no change in the composition, 56c a line. Count eight words to a line; add two lines for a head.

WANTED—HELP.

A YOUNG DRAUGHTSMAN—Familiar with stone yard work. Address J. H. BILLINGSLEY, 1005 Bates Street, Indianapolis, Ind.

GENERAL MANAGER AND SALESMAN to handle abrasive material that competes with garnet and emery. Address GARNET, care Rock Products.

MAN—Experienced in burning lime. Address W. L. MOOR, Tallahassee, Fla.

MAN of experience to take interest (light capital) in milling and handling blue stone. I have power, 200 acres rock, railroad tracks, and a great many conveniences at hand. Located within easy distance of all Eastern cities. The properties are being worked now. Address A. E., care Rock Products.

PARTNER—In a big, established, monumental business, doing both a wholesale and retail business. Established fifteen years. Must have a knowledge of the business. Can get work all the year round. Present plant owned by company. Address PARTNER, care Rock Products.

PARTNERS—One or more active men as partners in a manufacturing institution with already established trade, owning body of white sand, making shipments daily. Business growing. Men with some capital and experience desired. Address E. F., care Rock Products.

PARTY thoroughly acquainted with the trade in the Southeast, Southwest, Kansas and Missouri territory. Must be a good salesman, take charge of the Sales Department of a concern manufacturing cement plaster, lime and vitrified brick. Best references from past and present employers required. Address UNITED STATES BLDG. MATERIAL MFG. CO., Guardian Trust Bldg., Kansas City, Mo.

SALESMEN—We want good salesmen all over the South for the Winget building block machine. Address A. D. MACKAY & CO., Chamber of Commerce, Chicago, Ill.

SUPERINTENDENT—A first class stone man with \$5,000.00 to take an interest and superintend a large stone-cutting plant. Present plant only half large enough for the city. This is an opportunity rarely offered. Address THE WEBBER-WHITE STONE CO., Dayton, Ohio.

THOROUGHLY EXPERIENCED MAN capable of operating on his own responsibility a stone-cutting plant now connected with a large white marble quarry. An opportunity for a good stone cutting firm to get the advantages of having their own supply without any investment. Owner would operate quarry and deliver stock at bottom prices; have large orders booked now, and could supply plenty of cutting contracts to the right party. LOCATION—Thirty to one hundred miles will reach either Washington, Baltimore, Philadelphia or New York. Plant strictly modern, operated by electricity from my own supply. Marble well known, and accepted in competition with best Vermont and Georgia stock. It will pay responsible parties to investigate. Address MARBLE, care Rock Products.

YOUNG MAN—With some practical experience in stone sawmill and quarry; and with ability to travel and sell stone when required. Address THE McDERMOTT STONE CO., McDermott, O.

WANTED—POSITION.

QUARRYMAN—Young, up-to-date, with eight years' experience from time keeper, shipping clerk to superintendent. Am well versed in the grinding of lime and limestone; also crushed and dry pan stock. Can handle labor. Am open for position along any of the above lines. Address H. C. D. G., care Rock Products.

SUPERINTENDENT of stone-crushing plant, by capable engineer. A1 references. Address S. H. B., care Rock Products.

SUPERINTENDENT OR MANAGER of stone crusher or quarry. Can furnish best of references. Address MAC, care Rock Products.

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CABLE-WAY 600 ft. long, 2 in. diameter, with power, carrier and attachments. Address DIANA BEDFORD STONE CO., Bedford, Ind.

CEMENT MACHINE PATTERNS and patents for the United States and Canada. Address BOX 258, Jackson, Mich.

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LIGERWOOD CABLE—500-foot span, movable towers on standard gauge railroad wheels; engine, cable boiler and stack practically new; also 45 tons 56-pound steel rails. Address LAKE SHORE STONE CO., 509 Herman Bldg., Milwaukee, Wis.

MIXER AND CRUSHER—One Walker & Elliott 24 in. double iron frame mixer. One Sturtevant No. 1 rotary fine crusher. Address H. C. KINGMAN, Assignee, 30 Kilby St., Boston, Mass.

POLISHING MACHINE—One Noble wire rim saw Lane polishing machine. Address PITTSBURG CRUSHED STEEL CO., 61st and A. V. Railroad, Pittsburg, Pa.

SEVERAL second-hand Pulsometer pumps, boilers, engines and miscellaneous machinery. Address MASLINS, 165 First Street, Jersey City, N. J.

STEDMAN MILLS—Two 40-inch. Two 10-horse power gas and gasoline engines, one double gear mixer, two sets of rollers, second-hand engines and boilers. Address THE MERTES MACHINE CO., Lake and Barkley Street, Milwaukee, Wis.

VICTOR STEAM SHOVEL—Yard and one-half dipper; 45 h. p. boiler; shovel has been used but seven months. As we have no use for steam shovel, will sell cheap. Address VICTOR, care Rock Products.

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A RARE BARGAIN—A lime burning plant in good condition. Easy access to the stone, railroad and all the best markets. The owners have other business interests to look after, which is their only reason for selling. Address LIME, care Rock Products.

GRANITE OPPORTUNITY—Sale, lease or to form company—Maine white granite quarry; rail and water shipments. Some equipment and buildings; no entanglements. Address OPPORTUNITY, care Rock Products.

MONUMENTAL BUSINESS—A clean, modern stock of monuments, tablets and markers, mostly granite. An old established business in a city of six thousand in a rich country. Value of stock about \$4,500.00. A good opportunity for some one. Reason for selling, poor health. Address H. H. DOWDEN & SON, Greensburg, Ind.

SAND in unlimited quantities; on the railroad near here. Will sell cheap or join to develop. Address IKE A. CHASE, Memphis, Tenn.

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PLANER—A good second-hand stone planing machine. Must be in good working order. Write promptly, giving full particulars and price, to LOCK BOX No. 9, Mattoon, Ill.

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QUARRY—Suitable for the manufacture of scythe stones. For particulars apply to W. R. KNOWLES, Clifton, Gloucester Co., N. B. Canada.

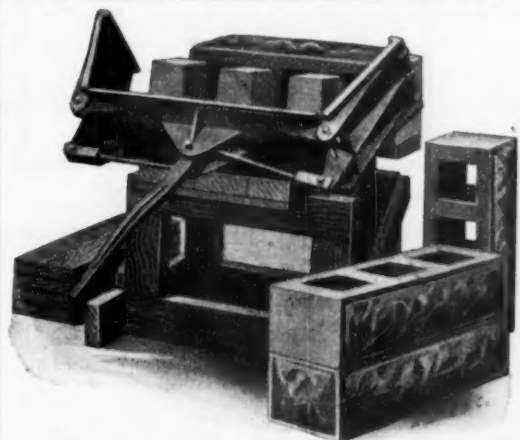
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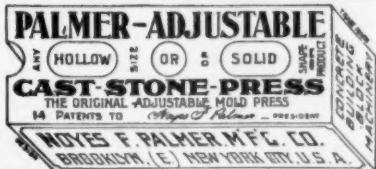
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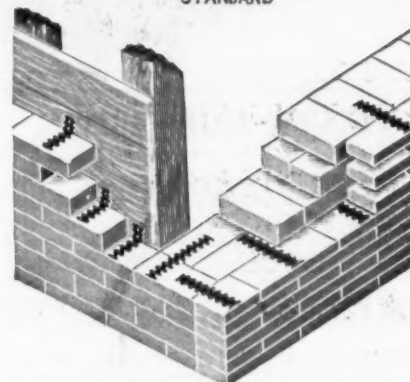
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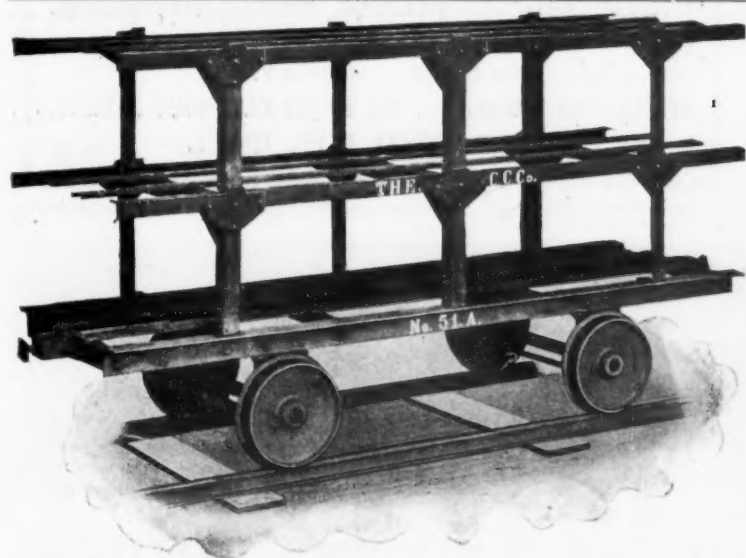
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Let us have your contract for advertising space, beginning with the March issue.

To Harden and Waterproof Cement Blocks use **"LOCKPORE."** Applied as a first coat on cement or concrete blocks makes the surface impervious to moisture or dampness, and makes the surface extremely hard. Use **"ANHYDROSOL"** a cellulose, waxy material as a second coat, which, applied in liquid form, sheds water or moisture and prevents deterioration.

We solicit correspondence with a view of furnishing more detailed information.

TOCH BROTHERS, ESTABLISHED 1848. **NEW YORK CITY, NEW YORK.**
OFFICE AND WAREHOUSE: 468-472 WEST BROADWAY. WORKS: LONG ISLAND CITY.
MAKERS OF THE CELEBRATED R. I. W. DAMP RESISTING PAINTS. TECHNICAL PAINTS CHEMISTS

Swindell Patent Lime Burner

and Swindell Patent Water Seal Gas Producer.

The only successful method of Burning Lime
with Producer Gas.

40 per cent. increase in output of Kilns.
30 per cent. Saving in Fuel.

Eight Kilns in successful operation for past seven months at Toledo
White Lime Co.'s plant, Martin, Ohio.

WM. SWINDELL & BROS.

German National Bank Building,

PITTSBURGH, PA.

CADEN STONE CO.

Green River Stone

the stone that gets white upon exposure
and then remains white.

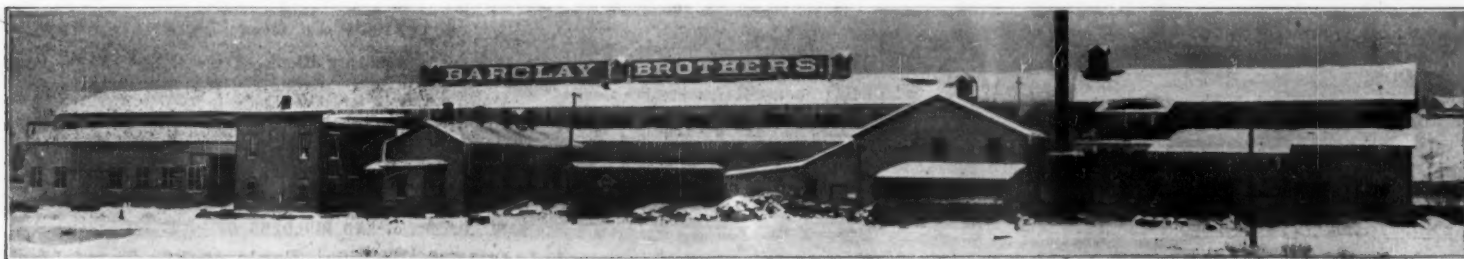
Monumental Stone

Block sawed, planed and Cut Stone.

SEND PLANS FOR ESTIMATES.

QUARRIES: HADLEY, KY.

OFFICE AND MILLS: 411 TO 425 EAST OHIO STREET,
EVANSVILLE, IND.



A VIEW OF OUR PLANT IN MID-WINTER.

QUARRIERS, MANUFACTURERS AND POLISHERS.

Our plant is equipped with all modern granite working machinery. Pneumatic Tools.
Surfacing Machines, Gang Saws, Column Lathes, all styles of polishing machinery, overhead travelling cranes, etc.

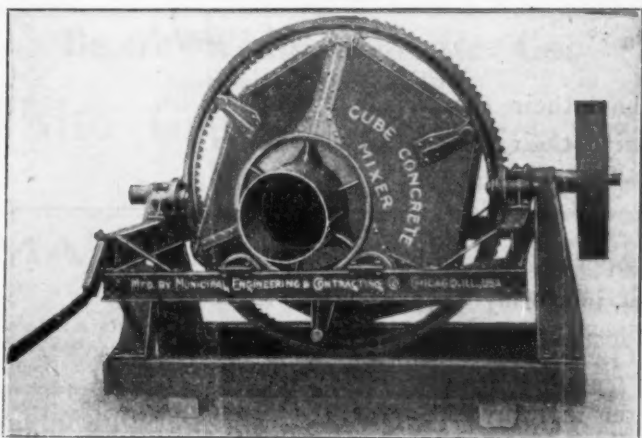
Representatives: W. E. Hussey, Utica, N. Y.
Chas. H. Gall, 79 Dearborn Street, Chicago.
C. C. Jenkins, 1 Madison Avenue, New York

BARCLAY BROS., Barre, Vt.

FOR SALE:—A good crushed stone plant; lease on 15 acres fine Southern Granite. No. 6 Gyratory Crusher complete with elevator, screens, steam drills, boilers, engine, derrick and large quarry equipment all set up ready to run.

Contract for large amount of crushed ballast already on hand.
Address **CONTRACTORS' SUPPLY & EQUIPMENT COMPANY,**
Old Colony Building, Chicago, Ill.

Tell 'em you saw it in ROCK PRODUCTS.



Cut of the No. 5—(3 wheelbarrows); and, No. 6—(1 wheelbarrow batch) are made especially for building blocks.

"Quality is remembered long after price is forgotten."

The foregoing truth applies particularly to makers of cement blocks.

The Chicago Improved Cube Concrete Mixer

is called the MACHINE OF QUALITY because no other mixer approaches it in quality of product. It is a cube and scientific.

It is the MACHINE OF QUANTITY because the fastest of mixers.

It is the MACHINE OF ECONOMY because low in first cost and low in cost of operation.

THE ONLY MIXER successfully handling A DRY MIX such as used in BUILDING BLOCK work.

7 sizes: batches 2 cubic feet to 64 cubic feet. 30 batches per hour. Hand and power. Steam, gasoline, electricity. Mounted on skids or on wheels.

SEND FOR CATALOGUE R.

AGENTS WANTED.

Municipal Engineering and Contracting Co.

General Offices: 607-611 Railway Exchange,

New York Office: 150 Nassau Street.

CHICAGO, U. S. A.

"CREAM OF LIME"

Produces the Smoothest,
Hardest and Best Finish.

The BUCKEYE LIME CO.

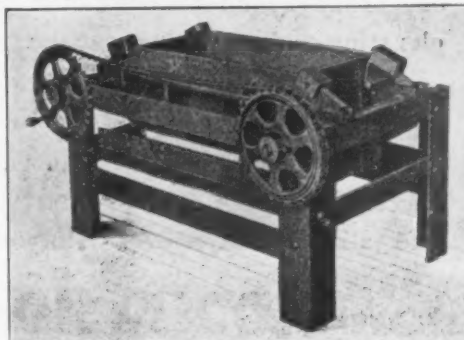
GENOA, OHIO.



Manufacturers: Sales Office, Holland Building, St. Louis.

The Lloyd Portland Stone Machine Artificial Stone

IS THE LATEST WONDER FOR MAKING PERFECT



Makes an endless variety, plain and ornamental. Sizes ranging from 30 x 30 in. Reduced sizes to the fraction of an inch can be made easier and quicker than with any other machine. Makes rock face by splitting the stone in the machine before the block is removed, thus producing two rocks of natural effect. This has never been accomplished before. Tube Mills with air separators and the Balance Ball Battery Mills. Send for circular.

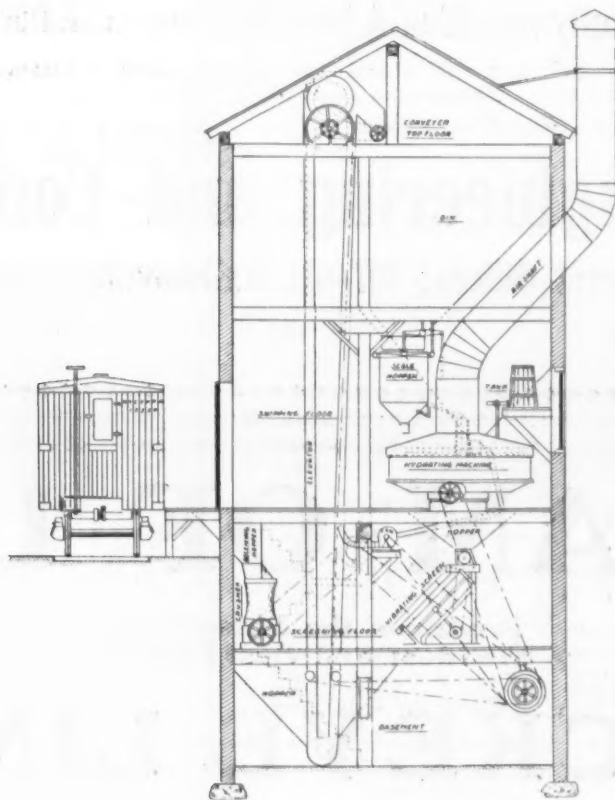
375 Pacific Avenue,
PITTSBURG, PA.

Tell 'em you saw it in ROCK PRODUCTS.

NO MORE TROUBLES.

Lime Manufacturers as well as others have their troubles, but with a CLYDE HYDRATING plant in connection with their kilns would obviate a good many of their troubles, and turn a business that is running at a loss, into a paying and profitable proposition.

With a HYDRATING plant you can operate your kilns continuously, Hydrating the lime will act as a balance wheel, in stormy weather when there is no demand for lump lime, hydrate it and accumulate a quantity for rush orders, extend your territory by being able to ship your products long distances and if your lime has any foreign matter in it hydrating will improve the quality as all insoluble matter is screened out.



HYDRATING PLANT.

End view of Hydrating plant 40 tons (10 hours) capacity 24x36 feet in size, having storage for 100 tons, showing relative position of machinery consisting of one crusher, one hydrating machine, one vibrating screen and one exhaust fan for taking dust away from packing spouts, also necessary elevating and conveying machinery.

Note the simplicity of this layout, we can build you a plant to suit local conditions, or furnish you machinery and you do your own construction work.

No experiment, system being used in many of the largest and most successful plants in the country. Ask to have one of our experts call and talk the matter over with you.

Ask for Catalogue.

CLYDE IRON WORKS,
DULUTH, MINN.

John E. Smith.
Donald Smith.

N. D. Phelps,
Mgr.

John Trow.
H. A. Phelps.

Barre White Granite Co.,

Successors to WHEATON QUARRIES.

White Granite FOR MONUMENTAL WORK,
CURBING AND PAVING.

Write For Quotations.
BARRE, VERMONT.

ROBINS BROTHERS,

MANUFACTURERS
OF ALL KINDS OF

Cemetery Work from Barre Granite
BARRE, VT.

MATT HALEY, BARRE, VT.

We build and furnish all modern improved
derricks and cableways for quarries and contrac-
tors work.

BARRE GRANITE ?

Well, that is just what we manu-
facture and if you want it just send
us a sketch of the work you need and
we will gladly furnish you estimates.

J. O. BILODEAU Monumental Work,
BARRE, VT.

Granite City Polishing Machine.

Power Hoist with ball bearing,
Rope Buffers and Scroll Wheels,
Air Compressors and Auto-
matic Tools. New and Second-
hand Engines, Boilers, etc.
WRITE FOR WANTS.

W. A. LANE,
BARRE, VERMONT.

C. W. McMILLAN.

C. W. McMILLAN, Jr.

G. W. McMILLAN & SON,

SUCCESSORS TO McMILLAN & STEPHENS.

ESTABLISHED 1888.

Manufacturers of Light, Medium and Dark

BARRE GRANITE

AND ALL KINDS AND SIZES OF CEMETERY WORK.

Dies, Caps and Bases Squared and Polished for the Trade.

BARRE, VERMONT.



We have no Superiors in the

CARVING AND STATUARY LINE

TRY US.

RIZZI BROS.,

BARRE, VERMONT.

Rock Products

One Year, One Dollar

The place to buy all kinds of granite
cutting tools is of

JAMES AHERN,

BARRE, VT.

Established in 1886.

Tools shipped all over the world. Write for prices.



THIS is a view of a
small portion of
our quarry.

All grades of Barre rough
stock furnished to the
limit of transportation.

All the most modern
machinery at both the
quarry and cutting plant.

WE MAKE PROMPT
SHIPMENTS.

We are prepared to
handle anything in the
line of manufactured work
at our cutting plant.

We especially solicit
heavy work and orders
that you are particular
about.

One of the Oldest and
most Reliable Granite
Firms in Barre.

Quarriers and Manufacturers,

WELLS, LAMSON & CO., BARRE, VERMONT.

Tell 'em you saw it in ROCK PRODUCTS.

BEST DARK BARRE GRANITE

We Sell **Rough Stock** only

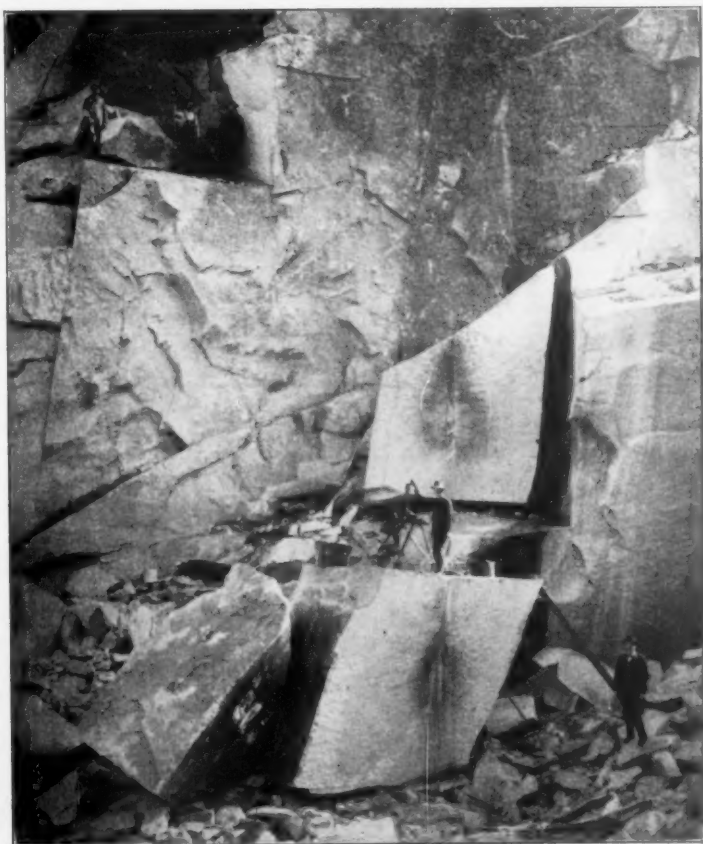


When Placing Orders Specify
that of

Boutwell-Varnum Granite Co.

Quarries at **BARRE**,
Office at **MONTPELIER, VERMONT.**

Tell 'em you saw it in ROCK PRODUCTS.



McDonald, Cutler & Co.,

BARRE, VERMONT

Quarry Owners and
Manufacturers of

**Monuments, Mausoleums
and Building Work**

WE CAN FURNISH

**Light and Dark Medium
Granite**

Orders For The Trade Solicited

CARBORUNDUM.

Grans, rubstones, wheels, and all other carborundum products. Carborundum is the most rapid cutting abrasive known.

DAVID MOWAT'S SCOTCH STEEL SHOT.

The secret in making steel shot is the tempering. If it is too soft it will flatten and go to mud, if it is too hard it will roll under the wheels and saws, but if it is tempered right it will cut from the start to the finish. We guarantee Mowat's Scotch Steel Shot to be just right.

MARVELOUS PUTTY POWDER.

It will buff marble and granite in one-half the time of any other putty powder, is twice the bulk of other putty powders on the market, and requires no more in bulk, consequently goes twice as far.

HAND POLISHERS KIT.

We put up an outfit, including everything necessary to polish granite by hand, and give full instructions how to use the material. Price \$8.00 f. o. b. cars Montpelier.

REVERSIBLE FELT BUFFERS

Are far superior to all other buffers and save two-thirds the time.

Price list and samples on application.

R. C. BOWERS GRANITE CO.

MONTPELIER, VT.

No. 20 Correction Wynd,
Aberdeen, Scotland.

No. 27 Chancery Lane,
London, Eng.

WOODBURY GRANITE CO.



We make a specialty of rough stock orders and of finished vaults. Try us, we can give you prompt delivery.

Two shades—Woodbury Gray and Hardwick White—the whitest granite known.

WOODBURY GRANITE CO.

HARDWICK,

VERMONT.

Tell 'em you saw it in ROCK PRODUCTS.

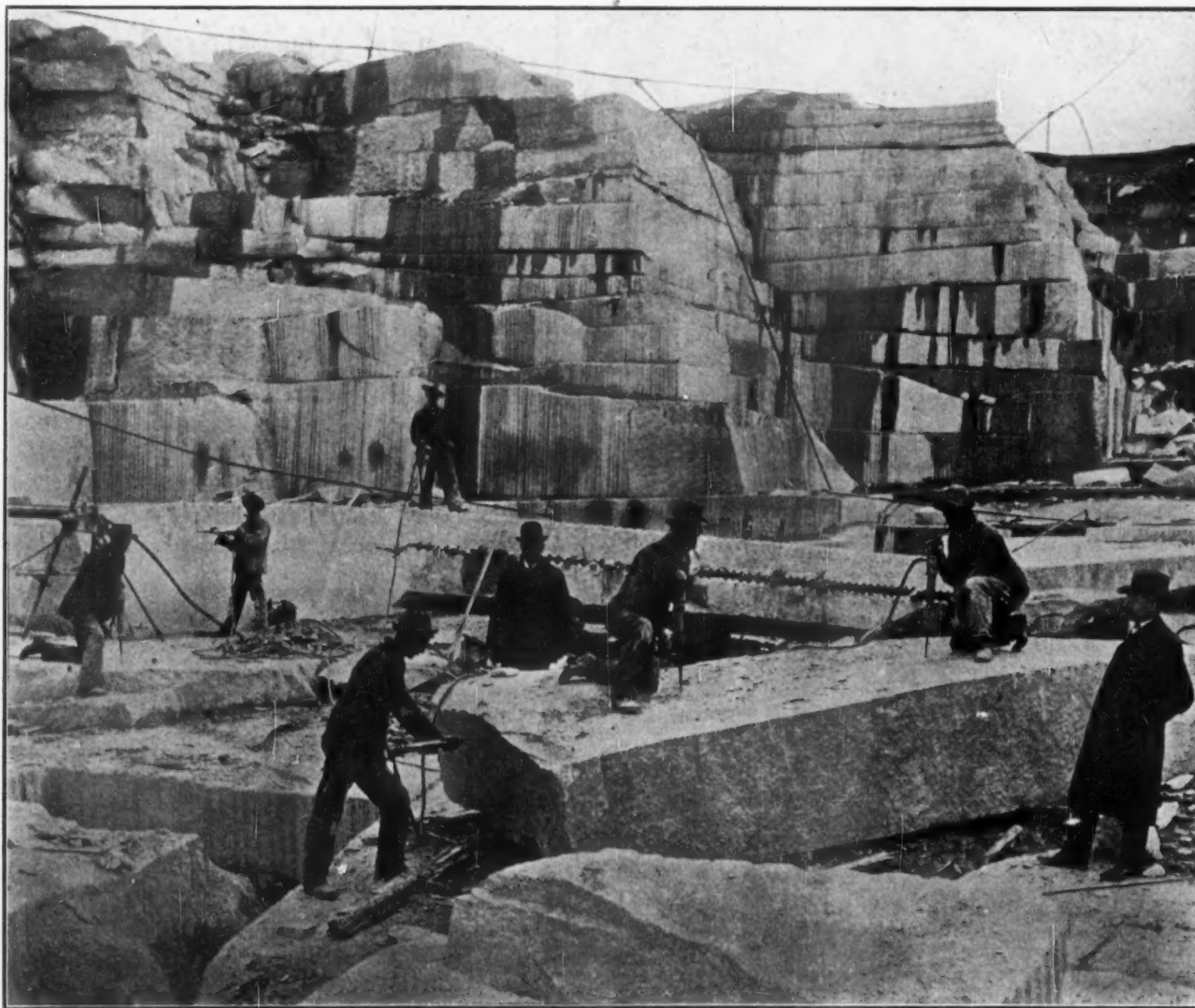
JOHN E. SMITH.

ESTABLISHED 1868.

DONALD SMITH.

E. L. Smith & Company,

— QUARRY OWNERS AND WHOLESALE DEALERS IN —



LIGHT, MEDIUM
AND DARK

BARRE GRANITE

ROUGH STOCK OF ANY DIMENSIONS TO THE LIMIT OF TRANS-
PORTATION PROMPTLY FURNISHED AT ALL TIMES.

Quarries and Cutting Works:

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BARRE, VERMONT.

Tell 'em you saw it in ROCK PRODUCTS.

J. K. PIRIE

Proprietor of the Quarry formerly known as

THE WELLS, LAMSON & CO., DARK QUARRY, Graniteville, Vt.

I have been in the company known as Wells, Lamson & Co. for 21 years and had the personal supervision of this quarry during that period.



Rough stock furnished to the limit of transportation.

Stock squared and polished for the trade.

Only five quarries in Barre producing dark granite and mine is second to none.



Among the important contracts for which the Granite was supplied from my quarry, are the following:

Broom County Soldiers and Sailors Monument, erected at Binghamton, N. Y.

Soldiers and Sailors Monument, erected at Kokomo, Ind.

Soldiers Monument, at Wellsboro, Pa.

Polished Columns and Carved Capitals for Mausoleum, erected by John L. Flood, at San Francisco, Cal.

Monument erected to Hon. A. B. Martin, at Lynn, Mass. One of the finest private monuments in New England.

WETMORE & MORSE GRANITE CO.

Finest Light and Medium

GRANITE

for Monumental or Building Work.

Any Dimensions
Furnished to Limit
of Transportation.

Stock for

Large Work

a Specialty.



QUARRIES AT BARRE, VT.

OFFICE: MONTPELIER, VT.

Tell 'em you saw it in ROCK PRODUCTS.

1826 The Granite Railway Co. 1903

SOLE PRODUCERS OF THE FAMOUS

Dark Blue "RAILWAY" Granite

Monumental and Building Work of all Kinds,
Our Specialty—Fine Polishing—Prompt Shipments.

BATES AVENUE, WEST QUINCY, MASS.
Trains from track 21, South Station, Boston, at 16 minutes past each hour of the day.

T. F. MANNEX,

PROPRIETOR OF THE FAMOUS

A. Reinhalter Extra Dark Quincy Granite Quarry.

Rough Stock for sale to the trade, also finished monuments, and every description of cemetery work. ✂ Rolls, Columns, Balls, Vases, Round Monuments, Balusters, etc. Turned and Polished.

T. F. MANNEX, West Quincy, Mass.

JOSEPH BISHOP

Manufacturer and Wholesale Dealer in

Quincy Granite Monuments

From Best Light and Dark Stock

INTERVALE STREET

QUINCY, - - - - - MASS.

MILFORD (MASS.) PINK GRANITE

for Building Work or Monuments, can be obtained at lowest prices by applying to

T. F. MANNEX, W. Quincy, Mass.



I. W. BATES & CO., Barre, Vermont

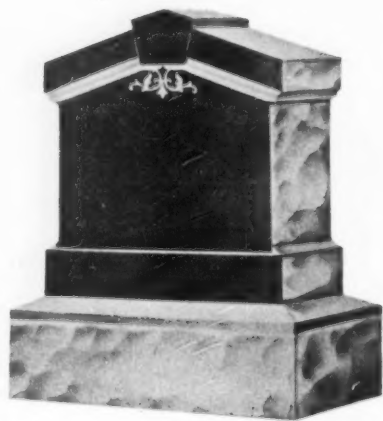
THIS CLASS OF WORK IS OUR SPECIALTY

**Columns, Urns, Balls, Vases, Rolls,
in Granite. Modern Cutting Lathes**

and most up-to-date machinery made. Square work that comes with a round job, taken care of in our own shop.

I. W. BATES & CO., ——— GRANITE ———
MANUFACTURERS.
BARRE, VERMONT.

This is One of Them



WE have a series of nineteen brand-new designs on two-piece jobs and we can get any of them out at short notice. They are just the right sort for the retailer to sell either from the photograph or from the monument.

WRITE FOR PARTICULARS

BECK & BECK, Barre, Vermont
Quarriers and Manufacturers

RED HILL GRANITE

Nothing else just like it. A beautiful blend of three colors.

Takes a high polish and is well suited for monumental work.

Rough base and building stock furnished at low prices.

Its color and grain make it a favorite with architects.

If you do not know the stone write for sample and prices.

MACHIAS GRANITE CO.

MACHIAS, MAINE.

THE ROGERS GRANITE CO.

Vault Work and Monumental Work
Manufactured from best Barre Granite.

Estimates cheerfully furnished on all classes of Work.

P. J. ROGERS, Manager. BARRE, VERMONT.

Tell 'em you saw it in ROCK PRODUCTS.



**Big
B**



Lime.



BIG B LIME

ITS HISTORY IS A STORY OF SUCCESS.

The Building Trades' Barometer. The Iron and Steel industry promises increased activity. It is predicted that a new tonnage record in that business will be established.

This means a large demand for LIME, and transportation facilities taxed. Isn't it wise to arrange early for your supply of LIME?

BIG B's quality is unsurpassed. That means satisfied and contented contractors for you. Our quick shipping facilities mean fresh lime on short notice.

A POSTAL CARD WILL BRING OUR 1905 MEMORANDUM BOOK.

**THE NORRIS AND CHRISTIAN STONE AND LIME CO.
MARION, OHIO.**

WOODVILLE WHITE LIME CO.

QUARRYMEN AND MANUFACTURERS OF

White Enamel Finish

**For Plaster, Sand-Lime-Brick
and Small Packages for the
Building Trade.**

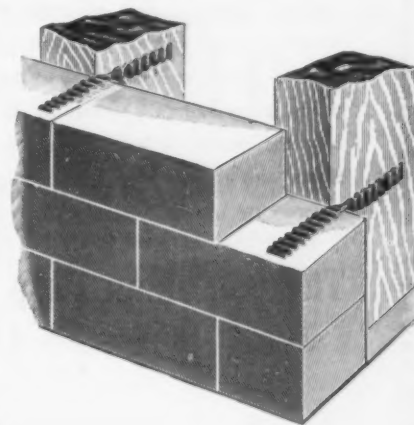
With modern machinery and experience,
We are specialists. A trial will make you
a regular customer.

WOODVILLE, OHIO.

J. B. Molyneaux & Co.

MANUFACTURERS OF

WALL TIES



P. O. Box 127,

CLEVELAND, O.

FOWLER & PAY,

**Brown Hydraulic Lime, Austin Hydraulic
Cement, Jasper Wall Plaster, Brick, Stone.**

CEMENT WORKS: Austin, Minn.
PLASTER MILL: Ft. Dodge, Iowa.
WAREHOUSE: Minnesota Transfer.

MANKATO, MINN.

OZARK COOPERAGE CO.

MANUFACTURERS OF

Lime, Cement and Salt Cooperage Stock.

We are specialists and can supply your wants promptly.

Frisco Building,

ST. LOUIS, MO.

Tell 'em you saw it in ROCK PRODUCTS.

WOOD PLASTER

The Coming Wall Covering

WE ARE THE ORIGINATORS.

After several years of experimental work we have reached **SUCCESS** and our goods are recognized as of the highest quality.

We wish to establish our trade in every important market, and will give local capital and local talent an opportunity to go in with us in the erection and operation of

MIXING PLANTS

Using our **IMPROVED MACHINERY** and **FORMULAS**.
The management of the local plant to remain with **LOCAL INTERESTS**.

Write us for full information.

The **ELYRIA WOOD PLASTER CO., Elyria, Ohio.**



We wish to contradict the claims made by any and all persons who are claiming to be the originators of, or that they can furnish patent formulas for the manufacture of Elastic Pulp Plaster, from wood fiber or pulp, or any of its kindred products. And we make this contradiction as a warning to any and all who claim the above, as well as to any one investing in such patent formulas, that we are the parent plant and sole owners of the original formula, and own the patents fully covering the same, in the United States and foreign territories, and will protect our rights accordingly.

The Napoleon Pulp Plaster Co.,
NAPOLEON, OHIO.

THE NEW INDEPENDENT PLASTER MILL

One of the Largest and Best Equipped.

MODERN IN EVERY DEPARTMENT.

The Goods are the Finest on the Market.

Goods are all tested before leaving the mill.

Goods are guaranteed to be of the best.

INQUIRIES AND ORDERS SOLICITED.

The Plymouth Gypsum Co. FORT DODGE, IOWA.

H. ACHERMAN, Pres.

L. V. UNCAPHER, Sec.

J. W. THEW, Treas.

The Central Ohio Lime and Stone Co. of Marion, Ohio.

CAPITAL \$150,000.00.

We own One Hundred and Seventy Acres of the best and choicest lime and stone land in Central Ohio. The plant is located north of the city on the Pennsylvania R. R. We are now operating our plant with a large force of the most experienced men that can be found anywhere.

We produce and have the statements to show that we have the best white lime that is on the market. Our furnace stone is pronounced by experts and consumers to be the best they have ever used.

Our kilns and crusher plant are now in full operation and we solicit your patronage. We guarantee our product to be as good as the best, give us a trial order and be convinced of our statement. All orders placed with us will receive prompt attention.

The Central Ohio Lime and Stone Co.



ASH GROVE
WHITE LIME ASSOCIATION
MANUFACTURERS OF
High Grade
White Lime.
KANSAS CITY, MISSOURI.

WESTERN LIME & CEMENT CO., MILWAUKEE, WIS.

Largest Manufacturers of Magnesian White Lime in the United States.
Daily capacity, 10,000 Bbls.

Exclusive Northwestern Distributing Agents.

For all the best Lehigh Valley, Pennsylvania, Brands of Portland Cements
Direct Importers of German Portlands.

Leading Shippers Throughout the Northwest, of Mason's Building Materials in General.

HIGH GRADE

FIRE BRICK

For Cement Works, Lime Kilns, Cupolas, Steel and Iron Works of every description :: :: :: ::

Louisville Fire Brick Works, K. B. GRAHN, Prop.,
Highland Park, Ky. P.O.

ROCHESTER LIME CO.

209 Main St., West, Rochester, N. Y.

MASONS' SUPPLY DEPOT.

Manufacturers of, and Wholesale Dealers in

Snow Flake Lime, Cement Building Blocks, Alpha Portland Cement, Hoffman Rosendale Cement, Cummings Akron Cement, Kings Windsor Wall Plaster, Kings Plaster Paris, Fire Brick, Fire Clay, Dynamite, Caps, Exploders, etc.

\$1,000.00 Dollars Reward

Will be paid for information, proof, and evidence, enabling us to procure judgment against any person or persons infringing on our Patents.

The Napoleon Pulp Plaster Co.,
NAPOLEON, OHIO.

Manufacturers of "the only" Elastic Pulp Plaster.

Tell 'em you saw it in **ROCK PRODUCTS.**

The Ohio Lime Company,

MANUFACTURERS OF AND WHOLESALE DEALERS IN

WORKS AT

Fostoria, Ohio.
Gibsonburg, Ohio.
Sugar Ridge, Ohio.
Tiffin, Ohio.

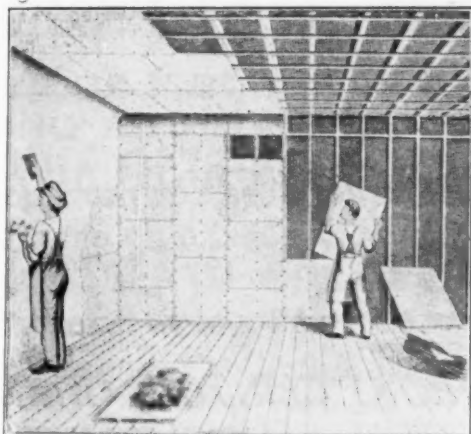
Ohio White Finishing Lime,
Ground Lime, Lump Lime,
Fertilizer, Hydrate Lime,
Cement, Plaster,
Hair, &c.

Capacity
3500 Barrels
Per Day.

OFFICE:

209-210-211 CHAMBER OF COMMERCE BUILDING.

TOLEDO, OHIO.



Sackett Plaster Board

A material used in the construction of Walls and Ceilings in place of wood and metal lath. Made in Sheets 32" x 36", 1/4" thick. Nailed directly to studding and finished with hard plaster.

Sackett Plaster Board is light, economical and durable. Will not warp, buckle or shrink. Is warmer than lath, consequently saves fuel. Is a fire retardant recognized by fire underwriters.

Walls and Ceilings constructed with these boards cannot fall.

GRAND RAPIDS PLASTER CO.

Manufacturers of Wall Plasters,
Calcined Plasters and other Gypsum Products.

WESTERN SALES AGENT.

GRAND RAPIDS, MICH.

CONCRETE, ASPHALT PAVING, ROOFING

CONTRACTORS

GRANITOID
PAVING

Ransome System, Reinforced Concrete

Factories, Grain Elevators, Silos, etc.

Mastic Asphalt Paving

Breweries, Warehouses, Cold Storage Plants

COMBINED CURB
AND GUTTER

COMPOSITION ROOFING

Asphalt, Pitch and Gravel Roofing

Ready Roofing and Building Papers

ROOF AND METAL PAINTS

SOUTHERN ROOFING AND PAVING COMPANY

(INCORPORATED.)

1006 West Main Street, LOUISVILLE, KENTUCKY

FLEXIBLE
ELASTIC
FIRE PROOF

ORR'S
"MASTIC" BRAND
PATENTED AND GUARANTEED

NO SAND
NO LIME
NO HAIR

"Mastic" Wood Fiber Wall Plaster is the restoration of one of the lost arts. To produce plaster without the use of sand, lime or hair is very novel, yet this is what genius has accomplished—"Pozzuolana Product." For strength, durability, easy working, it has no equal. "MASTIC" is endorsed by architects, builders and contractors alike as the ideal wall covering. Full plans for equipping new mills furnished with territory rights. Patents on machinery and formula process. Owned and controlled by W. H. ORR, Secretary and Manager of the

MASTIC WOOD FIBER PLASTER CO.

MAIN OFFICE: 607 State Life Building, INDIANAPOLIS, IND.

FACTORY OFFICE AND WORKS: 1705 West Washington Street.

M
A
S
T
I
C

THE NEW PROCESS

Wood Fiber Wall Plaster.

A Winner from the beginning. Architects and Artisans unite in its praise. The demand for this famous brand of wall plaster fast becoming universal. Formulas and machinery protected by U. S. letters patent. Territory rights to manufacture for sale on reasonable terms. Plans and specifications for new mills furnished. Machinery supplied and located at minimum cost. Trade supplied with MASTIC from our mills. If this looks good to you write

The Ohio Wood Fiber Plaster Co.

COLUMBUS, OHIO.

Tell 'em you saw it in ROCK PRODUCTS.

STUCCO RETARDER

We guarantee our retarder as strong as any made and to be absolutely uniform in strength.



VIEW DURING CONSTRUCTION.

All shipments made from large stock of properly aged material. Insuring uniformity.

Information concerning plaster formulas furnished.

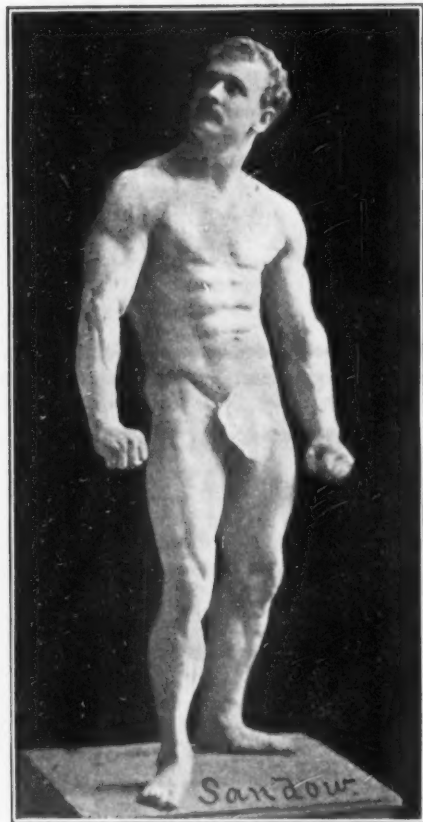
Freight prepaid on sample tons for trial order. If the retarder does not prove as economical as any made, we take the material off of your hands and make no charge for retarder used in making your tests.

Does this look good to you? Does it look as if we were afraid of the results of your tests?

THE OHIO RETARDER COMPANY, PORT CLINTON, OHIO.

STUCCO RETARDER

AS STRONG AS SANDOW.



We are the largest manufacturers of Retarder in the world. We guarantee our goods to be equal, if not superior, to any on the market.

We will prepay freight on samples for tests, to any part of the United States or Canada.

Information regarding the manufacture of Wall Plaster, cheerfully given.

The **BINNS STUCCO
RETARDER CO.**

UHRICHVILLE, OHIO.

Tell 'em you saw it in ROCK PRODUCTS.

PATENT SOAPSTONE FINISH

PLAIN AND IN COLORS FOR WALLS AND CEILINGS.

Patent Soapstone Mortar.

Prepared in any Color for Laying Pressed and Enamelled Brick, Stone Fronts, Terra Cotta, Chimneys, Fire Places, Etc.

The Dodge Blackboard Material or Artificial Slate.

The Potter Blackboard Material.

SOAPSTONE MICA. CONCRETE DRESSING.
CRUSHED, GRIND AND BOLTED SOAPSTONE.

AMERICAN SOAPSTONE FINISH CO.
C. P. DODGE, Proprietor. CHESTER DEPOT, VT.

Stucco Retarder.

Our Stucco Retarder is the Oldest, Strongest, and most Uniform Retarder on the market to-day. A trial order will convince you.

PREPAID SAMPLE SENT UPON REQUEST.

CHEMICAL STUCCO RETARDER CO.

Incorporated 1895.

WEBSTER CITY, IOWA.

SPECIAL MACHINERY AND FORMULAS

FOR THE MANUFACTURE OF

WOOD FIBER PLASTER, FIRE-PROOF-
ING AND KINDRED PRODUCTS.

The Ohio Fiber Machinery Co.

J. W. VOGLESONG,
GENERAL MANAGER.

Elyria, Ohio.

We furnish the latest improved FIBER MACHINE, (fully patented), also FORMULAS, on a reasonable proposition. The strongest companies and oldest manufacturers are operating under my contracts. WRITE FOR TERRITORY.

WHEELING WALL PLASTER CO.,

MANUFACTURERS AND JOBBERS

Wheeling Plaster and Builders Supplies.

WHEELING, - - WEST VIRGINIA.



DRYERS
OF EVERY TYPE
CONSTRUCTED FOR ALL PURPOSES.
BEFORE PLACING YOUR ORDER CONSULT
UNITED STATES DRYING ENGINEERING CO.
66 70 BEAVER ST., NEW YORK, U.S.A.

B. S. NEWTON, President.
1829.

GEO. E. NEWTON, Treasurer.
1904.

Seventy-five years of successful business is our proud record.

WE ARE PRODUCING THE HIGHEST GRADE OF

**Nova Scotia Land and Pure White
Windsor Calcined Plaster.**

Our extensive plant is complete in every department.

The latest mechanical improvements.

Unsurpassed facilities for filling large orders promptly.

Abundant resources.

Send us your orders and let us figure for you.

We can give you absolute guarantee of reliable goods.

Our long experience is at your service.

United States Gypsum Co.

General Offices, 184 LaSalle Street, CHICAGO, ILL.

Manufacturers of WALL PLASTERS Unsanded

Alabaster Cement Plaster.
Big 4 Cement Plaster.
Diamond Cement Plaster.
Duncombe's Cement Plaster.
Flint Cement Plaster.
Granite Cement Plaster.
Ivory Cement Plaster.
Imperial Cement Plaster.
K. & N. Cement Plaster.

O. K. Cement Plaster.
Rock Cement Plaster.
Roman Cement Plaster.
Red, White and Blue Cement Plaster.
Waterloo Cement Plaster.
Zenith Cement Plaster.
Baker Cement Plaster.

Prepared WALL PLASTERS Sanded.

Adamant Wall Plaster.
Big 4 Wall Plaster.
Diamond Wall Plaster.
Granite Wall Plaster.
Ivory Wall Plaster.

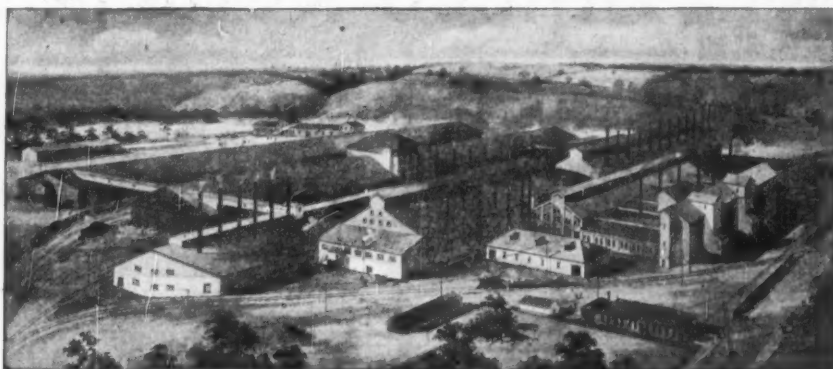
Imperial Wall Plaster.
Rock Wall Plaster.
Zenith Wall Plaster.
Baker Wall Plaster.

BRANCH OFFICES: Ft. Dodge, Iowa; New York Life Bldg., Omaha, Neb.; 480 Virginia St., Milwaukee, Wis.; Lumber Exchange, Minneapolis, Minn.; Foot of Tower Ave., West Superior, Wis.; Hammond Bldg., Detroit, Mich.; Indianapolis, Indiana; Sandusky, Ohio.

RED BEACH PLASTER CO.

RED BEACH, ME.

Tell 'em you saw it in ROCK PRODUCTS.



A Perfect Cement

THERE ARE
SOME VERY
GOOD REASONS
Why we Place **WHITEHALL** on the Pinnacle
of Perfect Cements.

AMONG THEM MAY BE MENTIONED THE FOLLOWING:

Our mill is up-to-date in every respect.

Our mill is a unit, and not a number of small mills run with more or less regularity.

All of our raw material is quarried on our own property.

We have a large corps of competent chemists employed at our mill, who carefully make chemical tests every hour during the day and night on the raw material as well as the finished product.

The clinker from our rotary kilns is particularly small, due to mechanical arrangements used in our mill only, consequently, on account of the smallness of the clinker, we are able to thoroughly burn the center, or, in other words, the entire clinker.

We confine ourselves to one uniform, standard grade of Portland Cement, and sell it under our registered trade-mark.

WHITEHALL is honestly, generously and thoroughly made, with the individual features above outlined, making it the standard of perfection.

The Whitehall Portland Cement Co.

1719-1725 LAND TITLE BUILDING.

PHILADELPHIA, PA.

172 E. Washington Street,
CHICAGO, ILL.

141 Milk Street,
BOSTON, MASS.



Louisville Hydraulic Cement.

Thirty million barrels used in important construction west of the Alleghenies.

Thorough reliability demonstrated by over seventy years' continuous use, most of the bridges, sewers and public works having been built with Louisville Cement.



Louisville Cement with two parts sand makes mortar as strong, after six months, as mortar made of Portland Cement with four parts sand.

The best work is the kind that accomplishes all the objects sought at least expense.

Illustrated Pamphlets Mailed on Application.

Western Cement Co.

281 W. Main St. Louisville, Ky.



CHICKAMAUGA Cement Co.

CHATTANOOGA, TENN.



HYDRATED PORTLAND LIME

— A CEMENT LIME —

Ready for Use. Attains Great Strength.

DIXIE ROCK CEMENT

THE SOUTHERN NATURAL HYDRAULIC CEMENT

Write for Prices and Particulars



Red, Brown,
Buff and Black

**MORTAR
COLORS**



The Strongest and Most Economical in the Market.

Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

CHATTANOOGA PAINT CO., CHATTANOOGA, TENNESSEE.

Tell me you saw it in ROCK PRODUCTS.

Buckeye Portland Cement Co.

ESTABLISHED 1888.

Manufacturers of the celebrated
"Buckeye" brand of

Portland Cement

"Buckeye" has stood the wear and tear in many important
places for the past fifteen years and under the new
process of manufacture is now better than ever :: :: ::

WE INVITE YOUR
CORRESPONDENCE.

Bellefontaine, Ohio.

The Best Portland Cement Is

"LEHIGH"

MANUFACTURED BY

Lehigh Portland Cement Co.

ALLENTOWN, PA.

Write for Catalogue.

Capacity, 4,000,000 Yearly.



THE OMEGA PORTLAND CEMENT CO.

F. M. STEWART, President.
ISRAEL WICKES, Vice President.
GEO. H. SHARP, Superintendent.
HOMER C. LASH, Chemist.
CHAS. F. WADE, Sec'y-Treas.



JONESVILLE, MICHIGAN.

Chicago Portland Cement Co.



MANUFACTURER OF...

"CHICAGO AA" PORTLAND CEMENT.

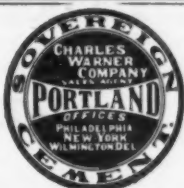
We make one brand only.

The best that can be made.

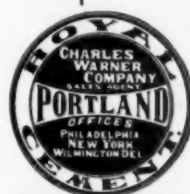


"LIMOID"

SEWER PIPE
FIRE BRICK
PLASTER, ETC.



Charles Warner Company



LAND TITLE BUILDING,
PHILADELPHIA.

WILMINGTON,
DELAWARE.



A
STANDARD
PORTLAND



FOR
UNIVERSAL
USE

CEMENT DEPARTMENT.

ILLINOIS STEEL COMPANY,

The Rookery,

CHICAGO, ILL.

BANNER CEMENT CO.,

MAKERS OF THE FAMOUS BANNER BRAND OF

LOUISVILLE CEMENT.

Guaranteed that 90 per cent. will pass a
ten thousand Mesh Sieve.

WE SELL TO DEALERS ONLY.

GENERAL OFFICE: MASONIC TEMPLE,

CHICAGO, ILL.



PENINSULAR PORTLAND CEMENT CO.

MANUFACTURERS OF

High Grade Portland Cement

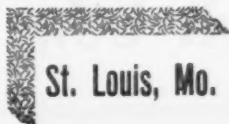
GENERAL OFFICE:

JACKSON, - - - MICHIGAN.

CHARLES W. GOETZ LIME & CEMENT CO.

MANUFACTURERS OF AND DEALERS IN

Glenwood Lime, Banner
Brand Louisville Cement,
Portland Cements and
Building Materials.



St. Louis, Mo.

Tell 'em you saw it in ROCK PRODUCTS.

Newaygo Portland Cement Co.

Sales Office: Michigan Trust Building,
GRAND RAPIDS, MICH.

Write us for prices.

Send us your orders.

"SCIENTIFIC SYSTEM" FOR THE MANUFACTURE OF
SAND LIME BRICK



Official Award Ribbon

ST. LOUIS 1904

MEDAL

Issued by Authority of the
LOUISIANA PURCHASE
EXPOSITION

San Francisco

Chief

GRAND PRIZE
AWARDED TO
Schwarz System Brick Co.
NEW YORK, U.S.A.
FOR
Sand Lime Brick Machinery
and Sand Lime Brick
DEPARTMENT OF MINES & METALLURGY
GROUP 116

Jabbenius
CHIEF

To All to Whom These Presents Shall Come

Greeting:

This Declaration

Is to Certify that the Attached

Official Award Ribbon

Is Issued to

Schwarz System Brick Co

By the Authority of the

Louisiana Purchase
Exposition

Bearing the Signatures of

San Francisco
PRESIDENT

A. H. Hoff
DIRECTOR OF EXHIBITS

And that the Holder Thereof has been Granted by the

Jury of Awards

The Award as Thereon Inscribed.

The Attached Official Award Ribbon

Is the Emblem of Authority of the Holder to make known to the
World that he has received the distinction of an Award from the

Jury of Awards
of
The Louisiana Purchase Exposition.

Copyright, 1904,
By MAJOR J. LOEWENTHAL

SCHWARZ SYSTEM BRICK CO., 8-10 Bridge Street, N. Y. City
 San Francisco Office: 320 Crossley Building

Tell 'em you saw it in ROCK PRODUCTS.

Sand-Lime Brick



AMERICAN SYSTEM

Sand Lime brick plants are now in operation all over the country, but the most successful are those operating under our American System.

No chance for failure by our methods, as we install the plants complete, start and operate same under guarantee until 100,000 brick are made.

No Royalties, no secret process, and no Chemicals; our plants are automatic and continuous in operation.

Guarantees absolute, and all money refunded in case of failure.

New Illustrated Catalogue just out. Sent free on application.

AMERICAN SAND-LIME BRICK CO.

GREAT NORTHERN BUILDING, CHICAGO, ILL.

NEW YORK OFFICE; 39 Cortlandt St. SOUTHERN OFFICE; City Bank and Trust Co. Bldg., Mobile, Ala.; SAN FRANCISCO OFFICE; 501 Rialto Bldg.

E. C. EWEN, President,
Saginaw, Michigan.

F. KOMNICK, Vice-Pres.,
Elbing, Germany.

J. L. JACKSON, Sec. and Treas.,
Saginaw, Michigan.

The American Sandstone Brick Machinery Co.

.....MANUFACTURERS OF.....

The Komnick System Sandstone Brick Machinery.

Over 70 plants running in Europe and 15 plants running in the United States, others being installed in both countries.



Every part made in our own works and thoroughly tested before leaving our hands.

Factory and Office:

SAGINAW W. S., MICH.



FORWARD, MARCH!

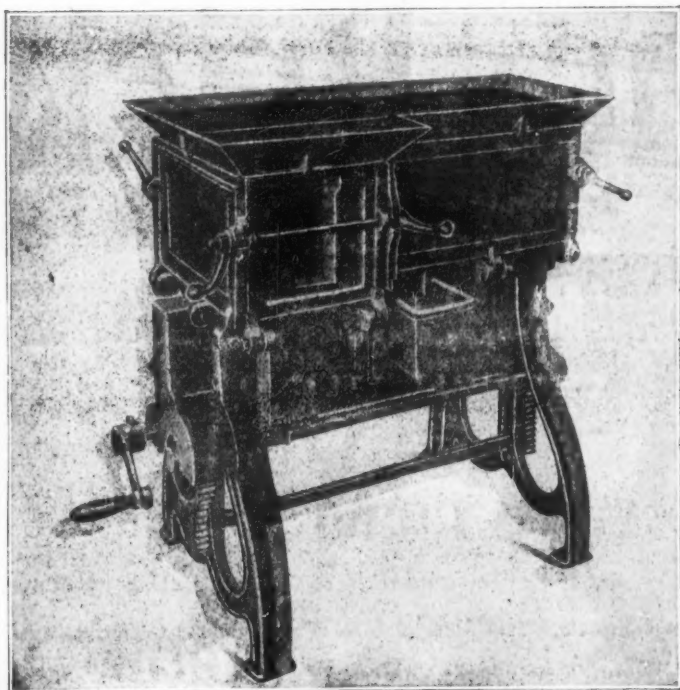
Onward and forward is the progress of the PETTYJOHN HOLLOW BLOCK MACHINE!

WHY? Because everybody knows that concrete should not be disturbed after it is moulded or while it is setting, but this is the only machine with which it is possible. BLOCKS cost 6 cents to make; sell for 13 cents. One man can make 200 blocks per day. Machine and complete outfit cost \$125.00. Figure the profits. Fully Guaranteed. Sent on Trial.

Write for Catalog.

PETTYJOHN BROTHERS, 1314 N. FIRST ST., TERRE HAUTE, IND.

Tell 'em you saw it in ROCK PRODUCTS.



This is the machine
 hat makes the blocks
 hat make the house
 hat PALMER built.

It is the BEST by every TEST.

BECAUSE:

ALL
 OF
 THESE
 POINTS
 ARE
 COVERED
 BY
 PATENTS
 TO
 US
 AND
 NO
 OTHERS
 FOUR
 PARTIES
 HAVE
 ALREADY
 BEEN
 ENJOINED
 BY
 US
 IN
 UNITED
 STATES
 COURTS
 FOR
 INFRINGING
 OUR
 PATENTS

It makes all lengths from FOUR to THIRTY-TWO inches.

It makes all widths from FOUR to EIGHTEEN inches.

It makes all heights from ONE to NINE inches.

It makes all angles for BAY WINDOWS.

It makes blocks of different contour by removable face plates.

It makes JOIST blocks, BELTING-COURSES with patented designs.

It was invented by a practical house builder and not a novice.

Its proportions as to strength and weight are correct.

It is not a cumbersome and bungling piece of mechanism.

Every block made on PALMER'S machine fits in the SYSTEM with
NO WASTE.

Don't be deceived into buying a machine just because it makes a hole in
a block. **HEREIN LIES THE POISON TO OUR BUSINESS.**

We want the names of all infringers of either machines or blocks.

BEWARE of CHARLATANS and MOUNTEBANKS WHO KNOW
 NOTHING OF THE BUSINESS, BUT WANT THE PUB-
 LIC'S MONEY ON OTHERS' SUCCESS.

The **HARMON S. PALMER CO.**

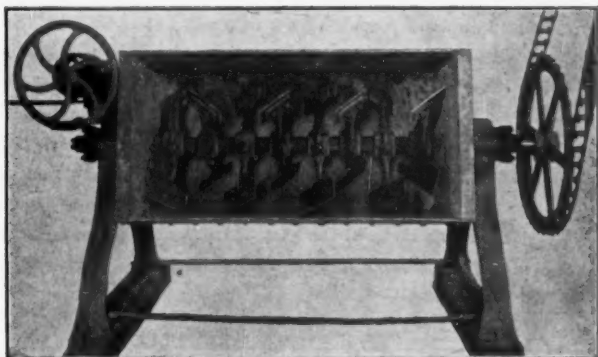
WASHINGTON, D. C.

Tell 'em you saw it in ROCK PRODUCTS.

WINNER BLOCK MACHINE CO.

MANUFACTURERS OF

Hollow Block Machines



SHOWING MIXER HALF DUMPED.

**Concrete Mixers, Fence Post
Molds and Sewer Tile Molds.**

Our molds are all copper lined to handle wet material.

Complete outfit for \$1,150.00 consists of one engine, one mixer, two block machines with 200 bottom boards, one fence post mold, and one sewer tile mold.

✎ Write for prices for any single article. ✎

AGENTS WANTED

1 and 2 West 29th Street, - - MINNEAPOLIS, MINN.

The Miles Concrete Building Block Machine.

Patented September 15, 1903. Other Patents Pending.

Forty Machines in one, it has given satisfaction wherever tried



No Up-to-date Contractor can afford to be without this Machine

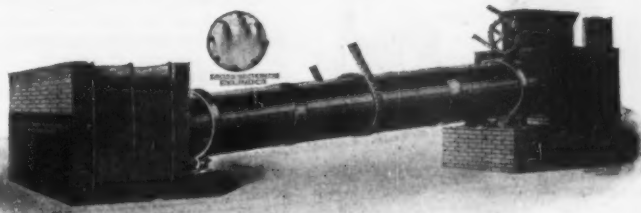
Write for descriptive circulars to

THE P. B. MILES MANUFACTURING CO.

Offices, 23 Dwight Building.

JACKSON, MICHIGAN.

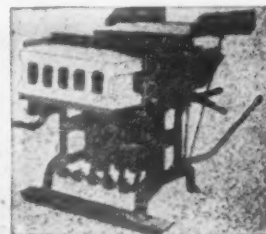
SAND DRYER



Dryers, Screens, Elevating and Con-
veying Machinery, Mixers, Concrete
Building Block Machinery of all kinds,
Power Tampers, Etc.

THE SIMPLICITY BUILDING BLOCK MACHINE

For the manufacturer of hollow or
solid concrete building blocks. Ad-
justable for all sizes and shapes.
Delivers the block on its side, a
saving of labor. Wood pallets are
used, other machines use iron pal-
lets, a full set of which costs as
much or more than price asked for
our complete machine. CONSIDER
WELL BEFORE PURCHASING.



"THE SIMPLICITY"

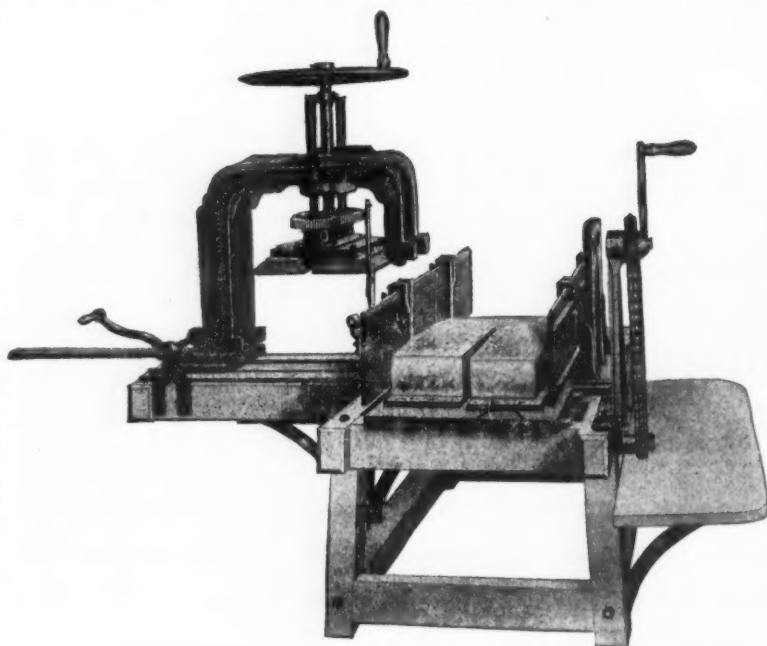
Agents wanted in every State. Ask for catalogue and prices.

The Standard Sand & Machine Company.

CLEVELAND, OHIO.

Tell 'em you saw it in ROCK PRODUCTS.

The Brady Adjustable Cement Stone Machine.



It is adjustable, enabling the operator to make two stones at one operation; any desired design of face or moulding. It is adapted to hollow wall, veneer, foundation work, water tables, mouldings, copings, arches, piers, caps, sills, quoins, keys, plinths, etc., and, in fact, any class of stone required in the construction of buildings. It makes stone in sizes from 6 x 2 x 2 to 17 x 60 x 8, and two stones at one operation in sizes from 6 x 2 x 2 to 8 x 60 x 8.

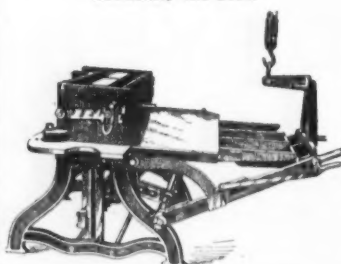
Cement stone made under positive and equal pressure and with two and one screened sand and cement facing will not absorb water or moisture. Build your building with cement stone manufactured by the Brady Adjustable; lay your walls with one or two-inch hollow space, using metal ties. It makes the driest, warmest and most durable, as well as the cheapest and strongest building you can build. Defacing is a thing of the past, if you use stone manufactured with the Brady Adjustable Cement Stone Machine. Write for our 1905 Catalog.

BRADY CEMENT STONE MACHINE CO., Ltd.,

410 N. Jackson Street,

JACKSON, MICH.

Absolutely the Best.



Normandin Block Machine—(Closed) the only durable machine on the market

"TEN MACHINES IN ONE"

Normandin Hollow Concrete Block Machine

and its product, is universally recognized by the leading architects, contractors, engineers, builders, railroads and cement workers AS THE STANDARD.

Hundreds of Normandin machine plants in operation. The Hollow Block business is permanent and profitable, broadening in extent every day. It's not a question of material, but it is a question of machine. The Normandin is what you want, take no substitute. INVESTIGATE for yourself, in fact "look before you leap," get value for your money. Don't get a machine because it's cheap and be handicapped, when you get a contract for an up-to-date building, because you can't make the blocks wanted—Normandin Blocks are standard.

The Normandin machine is "ten machines in one" designed to save labor, material and expense. Adopted and used by the United States government engineers. "The Normandin must be right." The most practical machine ever manufactured. Has won over all competitors. We are pioneer block machine manufacturers, and have just the machine you want. We know what the trade demands, consequently we build our machines right. Thousands of Normandin Blocks being used daily. Send for full printed matter to-day.

Styles and Variety of Stone Unlimited.



Normandin Block Machine—(Open) and its Product. HIGHEST AWARDS Universal Exposition, St. Louis, 1904, for superior excellence. WE LEAD; OTHERS FOLLOW.

CEMENT MACHINERY CO.

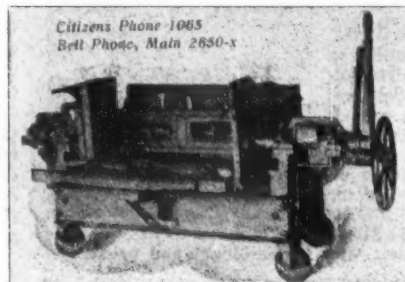
Factory, 220-222-224 North Jackson Street

Jackson, Mich.

Office Cooley Building

THE HAYDEN AUTOMATIC BLOCK MACHINE CO.

112 West Broad Street, (P. O. Box 305.) COLUMBUS, OHIO.

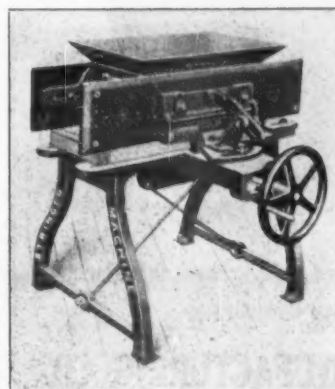


Citizens Phone 1065
Bell Phone, Main 2650-x

Simplest, most complete and swiftest machine on the market. Only perfect machine making face of block in horizontal position, producing most satisfactory work and variety of designs, impervious to moisture. All blocks released and delivered automatically to a support in front of the machine, ready to be removed for drying.

Write us for Catalogue before purchasing.

New York and Foreign Office: HAYDEN AUTOMATIC EQUIPMENT COMPANY, 30 Cortland Street, New York, N. Y.



The Stringer Cement Block Machine

Latest Improved, Handiest, Quickest Adjusted.

Will make Blocks any size from brick up. Water Tables, Sills, Angles, Gables, Culvert and Sewer Blocks—

HOLLOW OR SOLID.

STRINGER MACHINE CO., Jackson, Mich.

Tell 'em you saw it in ROCK PRODUCTS

"On the high wave of popularity."

"The peer of all."



"The success of the age."

THE IDEAL HOLLOW CONCRETE BLOCK MACHINE

"That means something."

No wheels, no cogs, no gears, no chains, no cranks. Nothing to clog, break or get out of order. No loss of time or labor.

Our "Ideal" covers the four cardinal points, SIMPLICITY—RAPIDITY—ADAPTABILITY—DURABILITY. Face formed on bottom of mould. Cores withdrawn horizontally by lever, not by hand. *Guaranteed* capacity: 2 men, 10 hours, 200 blocks. A portable machine that can be carried with ease by 2 men. Over 200 in use in the State of Indiana alone. The only machine with which can be accomplished the facing of blocks by the Borst system. A business proposition to the maker of blocks. An appeal to the common sense judgment of the builder.

In corresponding with us we make our business your interests.

Ideal Concrete Machinery Co.

SOUTH BEND,

INDIANA, U. S. A.

Formerly AUBURN, INDIANA.

DRAWER 762

Tell 'em you saw it in ROCK PRODUCTS.

WE SELL THE FAMOUS BOWEN CHEMICAL FORMULA

SUPERVISED BY MR. BOWEN HIMSELF

We sell to contractors, anywhere, who use Sand and Cement, this invaluable Formula.

CONTRACTORS WORK ALL WINTER

Make brick and building blocks out in coldest weather. The use of our Formula guarantees your work against HEAT and COLD and all changes of weather. Your building blocks, window sills, fence posts, in a word, wherever sand and cement are used, our chemical will crystallize your productions and make them durable and lasting as the hardest stone.

PRICES

One Case Formula Compound, \$4.00. This package will make 50 gallons of chemical, 300 building blocks, or ten thousand Sand and Cement brick.

A trial will convince you that you can not afford to be without it. SEND TO-DAY.

We build and equip Sand and Cement Brick plants. Write us for particulars.

WESTERN BRICK CO.

No. 12 South Second Street, KEOKUK, IOWA, U. S. A.

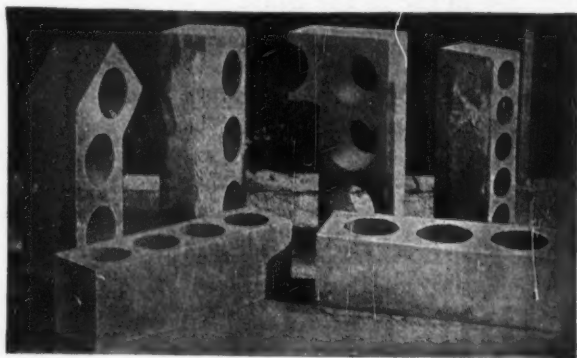
R. H. BOWEN, General Manager.

205 Whitney Bldg., Detroit, Mich., Teague & Vaughn, Mgrs.

STONE CHEAPER THAN BRICK.

Made under the new method without tamping or pressure on our machine which costs but

\$50.00



We Make Seven Stones

in one operation 2 ft. 6 in. x 9 in. x 10 in. No experiment; our work can be seen in thousands of buildings. Send for detailed information.

STEVENS CAST STONE CO.,

808 Chamber of Commerce, CHICAGO, ILL.

Fisher's Hydraulic Stone System,

W. H. FISHER, Patentee.

Architects recommend it. People are delighted with it.

A Sure Money Maker.

We have solved the building material question. Every block a perfect one, because the tamping is done by hydraulic pressure and automatic hydraulic kneading, which drives out all of the air and closes all of the voids. The machine is entirely automatic and the process such that the necessary chemical reaction is not hindered. All shapes and designs, veneer blocks for frame structures, angular blocks for hollow walls. Walls built from our block are absolutely sanitary. We make thousands in a day, large profits are beyond question. Our product is in constant demand. This is the only system which at once removes the brick from the iron or wooden mold, thus giving the hardening process the greatest possible freedom. A plant can be seen in full operation at Memphis, Tenn., where the Memphis Hydraulic Stone Co. have one of the finest up-to-date plants in the country.

ALL MACHINERY GUARANTEED
FOR ONE YEAR.

—WRITE FOR TERMS OR INFORMATION—

MOUNT GILEAD, OHIO.

SAND-CEMENT BRICK

are Revolutionizing the Brick Industry.

We erect and fully equip plants with all the necessary machinery to successfully manufacture Sand-Cement Brick. Our Factories are uniformly successful and are not experiments. We are owners of the Maurer Pressed Brick Machinery and Process for curing Sand-Cement Brick and Blocks. Get the best machinery and you will save money—We have it. Send for Free Booklet.

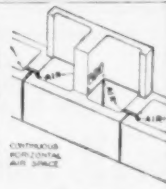
The National Sand-Cement Brick Co.

119 North Seventh Street.
Rooms 54 and 55 DeMeuil Building.

ST. LOUIS, MO.



HOLLOW
CONCRETE
WALLS AND
PARTITIONS
TWO-PIECE
SYSTEM



Patented.

Would You Like to Learn

All about the two-piece wall containing the header bond, made of True Concrete, stronger in a 1 to 10 mixture than hand tamped damp sand and cement in a 1 to 3 mixture? Every block made under heavy pressure, in steel moulds, in one set of which all the different widths of wall from 2 1/2 in. to 17 in. can be made by simply changing the adjustment, making a wall 50 per cent. hollow, containing an air chamber both in the horizontal and perpendicular, through which moisture, heat and cold can not penetrate—a block easily handled by one man—to which any facing desired 1/4 in. thick is applied before the block is pressed. One thousand sq. ft. of wall per ten-hour day made, cured and cared for with nine men—three times the daily product possible under any other system. Fully illustrated in prospectus, sent free.



Patented.

THE AMERICAN HYDRAULIC STONE CO., Century Bldg., Denver, Ohio.

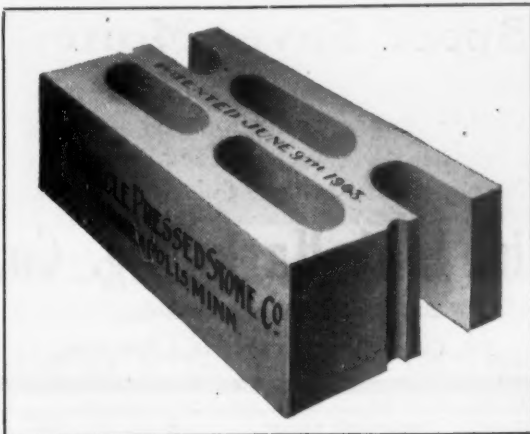
Tell 'em you saw it in ROCK PRODUCTS.

A MIRACLE BUILDING



ERECTED BY BOYD & ERICKSON.

Frost-proof; Damp-proof Walls of Miracle Double Dead Air Space Blocks. Let us tell you about the MIRACLE METHOD and EXCLUSIVE RIGHTS TO MANUFACTURE.



The average daily capacity is 120 a day for each mould; it is the only double air spaced kind that can be plastered on the inside without lath or furring strips. Our moulds are simple, do not get out of repair. No gearing to clog with cement; no expensive iron bottom plates. Most efficient and economical. We have a story to tell you about our world-famed

HAND TAMP TOOLS.

WRITE TO-DAY.

MIRACLE PRESSED STONE CO.

6th Floor, Northwestern Building,

MINNEAPOLIS, MINN.

Fisher Building, CHICAGO.

No. 1, Park Row, NEW YORK.

Boston Block, SEATTLE.

Tell 'em you saw it in ROCK PRODUCTS.

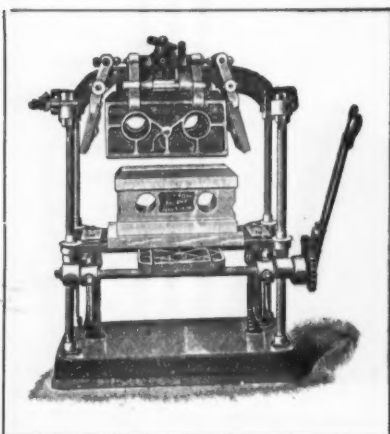
Our Machines are Simple, Complete, Inexpensive, Reliable. Either Hollow or Solid Concrete Blocks

One Machine in a Section Means Many More Soon.

HERE IS A RECORD HARD TO BEAT—Out of 2,300 blocks in one run only ten were broken or imperfect. No dough-faced blocks produced, but a sharp rock face, rivaling granite or limestone for sharpness. We court comparison of our rock-faced block with anything in the United States. Price within the reach of all.

You can build your own house with our Machines and save money, even if you throw the molds away afterwards. Write For Particulars.

MICHIGAN CEMENT BLOCK MACHINERY COMPANY, UNION CITY, MICHIGAN.



The Cottom Artificial Stone Blocks made on the "Cottom Machine" Are Superior to All Others.

They are laid in the wall by pouring semi-liquid cement into and between them, the process being covered by patent, making A PERFECT WALL. For information address, :: :: ::

The Cottom Artificial Stone and Mfg. Co.
46 Callahan Bank Building, DAYTON, OHIO.



No tamping—making more than a block a minute with ease.

The Fastest Machine

ON THE MARKET

Making Concrete Building Blocks.

The Product the Best Speed Saves Money

Evenly distributed pressure of five tons. Wedge shaped, curved or radial block, all shapes made with equal facility—any facing. Water-tanks. Culverts. Arches.

The Link-Hark Mfg. Co.

203-204-205 Livingston Bldg.,

BLOOMINGTON, ILLINOIS.

STONE PRESERVATIVE

A Colorless Liquid Applied Cold with a Brush to the Surface of

CEMENT STONE, BRICK, CONCRETE, ETC.

Completely prevents the penetration of air and dampness. For full particulars on the above, also on materials for preventing penetration of dampness in basements, efflorescence on walls, etc., address

HUNKINS-WILLIS LIME AND CEMENT CO.

Specialty Department

ST. LOUIS, MO.

Improved Automatic DRIERS

Specially Adapted to Sand, Lime, Stone, Clay, Etc.

CAPACITY AND ECONOMY. NO WEAR AND TEAR.

American Process Company

7 62 WILLIAM STREET, NEW YORK, N. Y.

Place Your Advertising in Rock Products to reach 125,000 Interested Readers in 1905.

Tell 'em you saw it in ROCK PRODUCTS.

Every Shape and Kind of Stone on
The Hercules Cement Stone Machine



MADE ON ONE MACHINE.

The cement saved over other machines alone pays a good profit.

Makes any sized hollow cement blocks from 2 in. to 5 ft. long, also doors, lintels, coping, ornamental designs, sills, etc.

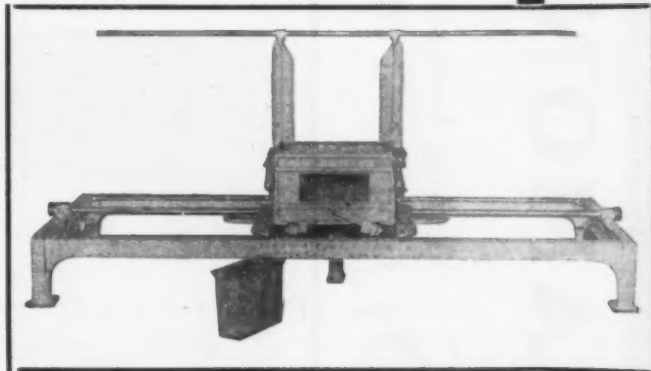
Tamps on the face of the mould allowing the use of a 2 to 1 mixture of sand and cement for facing, rendering the block impervious to water and true to pattern and a 5 to 1 mixture for backing—This is how cement is saved.

Simple construction enables

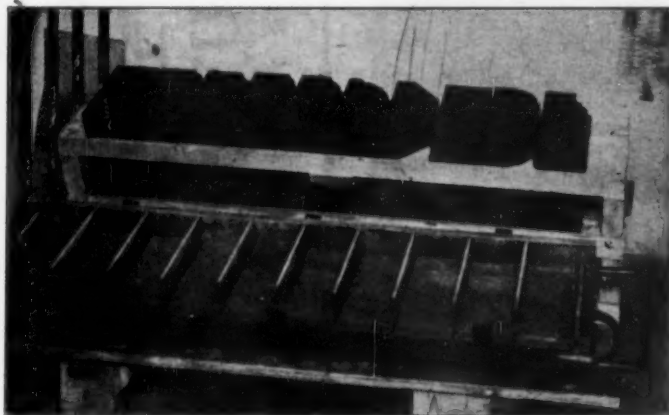
rapid operation by unskilled labor.

Hercules blocks in big demand for all building purposes, cheaper than brick or stone—far more durable.

Big money for the men who manufacture Hercules blocks. Small capital will set you up. Write to-day for catalog.



CENTURY CEMENT MACHINE CO., 179 W. Main Street, ROCHESTER, N. Y.



Here is what you have been looking for!

Cement or Lime Brick Machine

Makes 10 perfect brick per minute with two unskilled workmen.

Be your own brickmaker.

Can be changed from plain to ornamental brick or vice versa with no loss of time or extra expense.

E. W. SEAMANS,

25 Fountain Street,

GRAND RAPIDS, MICH.

Companies Organized and SYSTEMS INSTALLED with the most modern EQUIPMENT.

STANTON SYSTEM CONCRETE SAND-LIME BRICK.

Comprising the entire line of COMPOSITION MATERIALS.

240 Housman Bldg., Active Operations, 150 Nassau St.,
GRAND RAPIDS, MICH. Laboratory and Present Address NEW YORK CITY.

SCHENECTADY, N. Y.

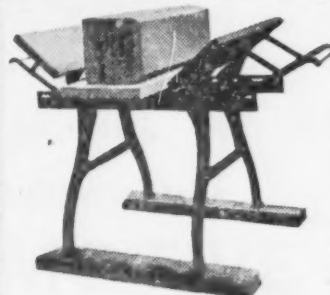
My COMPANIES manufacture Concrete Stone, moulded and cast, hollow and solid; ornamental designs and trimmings; Key-stones and Arches; Window Heads and Sills, Etc. MONOLITHIC CONSTRUCTION, Foundations, Bridges, Sub-ways, Sea-walls, Retaining-walls, Watertight Cellars, Silos and Stables, Sidewalks and Curbs; also face, medium and common Brick.

ELMER E. STANTON,
Originator and Sole Owner.

Concrete Engineering Experts, Inspectors and Directors of Operations Furnished.

THE BLAKESLEE CONCRETE BLOCK

IS DIFFERENT.



It is Moisture-proof.
It Makes Dry Walls.
No Furring and Lath Needed.
Plaster Applied Directly to Wall.

Suitable for use in Party Walls.

It is not a hollow block.

The Blakeslee Patent covers fundamentally any building block wherein there are no continuously solid portions from front to rear for the moisture to traverse.

Write for catalogue of Machine.

The Blakeslee Concrete Block and Machine Co., Columbus, O.

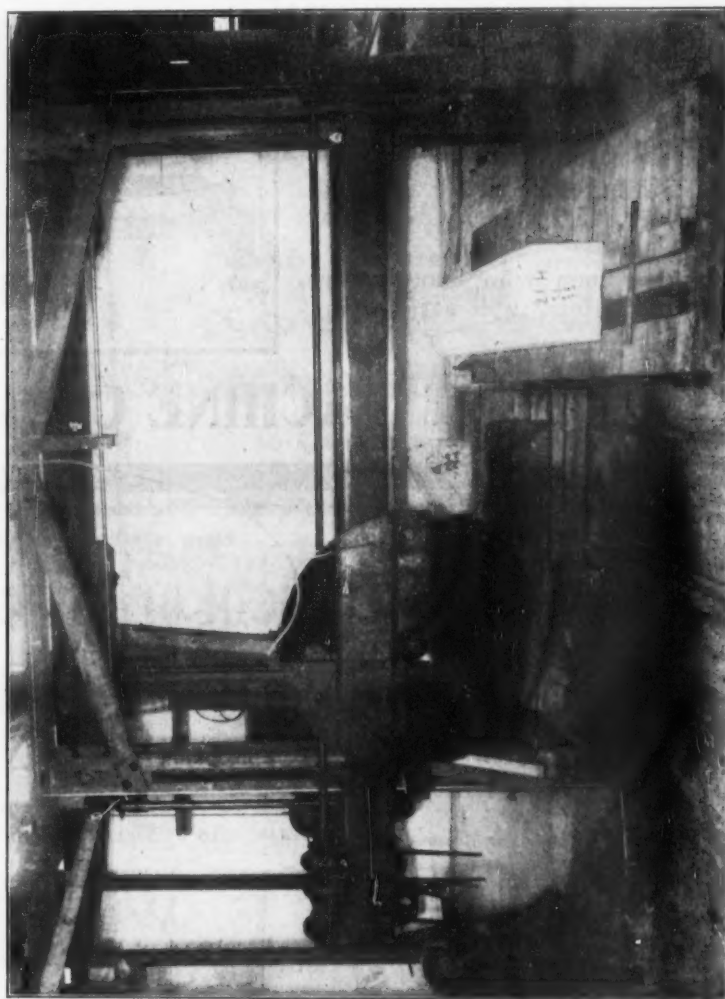
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THE ADVANCE DIAMOND SAW

AS BUILT BY

WILLARD F. MEYERS,

Vernon Avenue and 14th St.
Long Island City, New York



MANUFACTURER OF

Diamond Reciprocating and Circular Saws

For cutting all kinds of Building Stone, Marble, Slate, Tile, etc. Automatic
Marble Polishing Machines and General Stone Yard Machinery

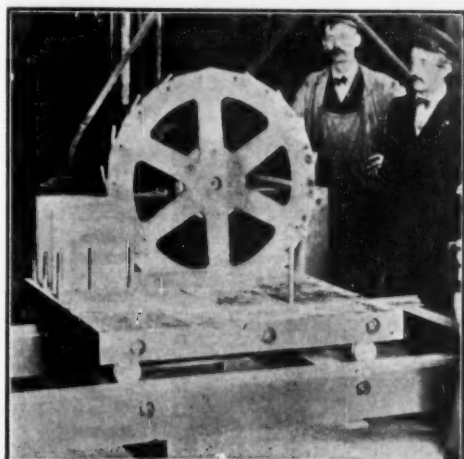
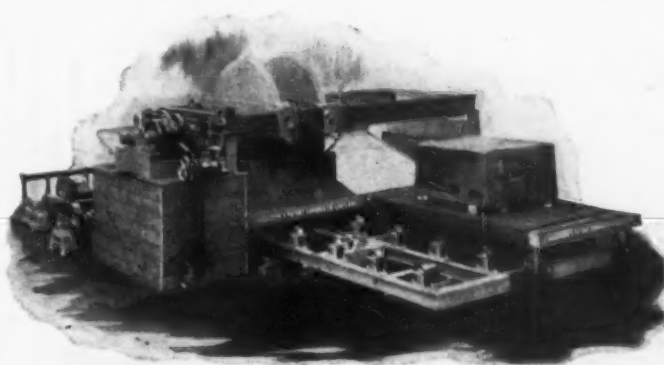
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DIAMOND SAWS

FOR

**LIMESTONE
AND MARBLE**

GEO. ANDERSON & CO. 420 Ogden St.,
NEWARK, N. J.



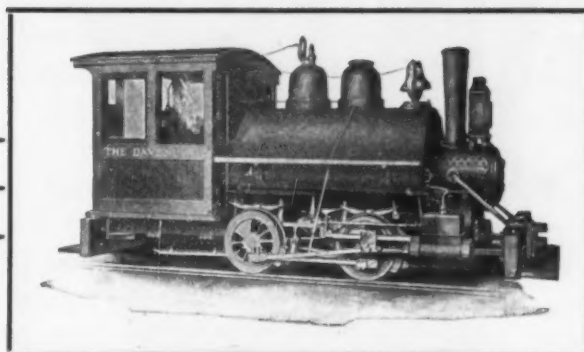
The **QUINLEN EDGER**

Cuts soft stone at a saving of many dollars per day. Just patented and proven conclusively to be a success. Very simple and durable and price very reasonable. For particulars, write to

W. C. QUINLEN, BARRE, VT.

DO YOU HAVE CARS TO HAUL?

THE DAVENPORT LOCOMOTIVE WILL SAVE MONEY.



SPECIAL DESIGNS FOR SPECIAL PURPOSES. ANY SIZE, ANY GAUGE, ANY WEIGHT.

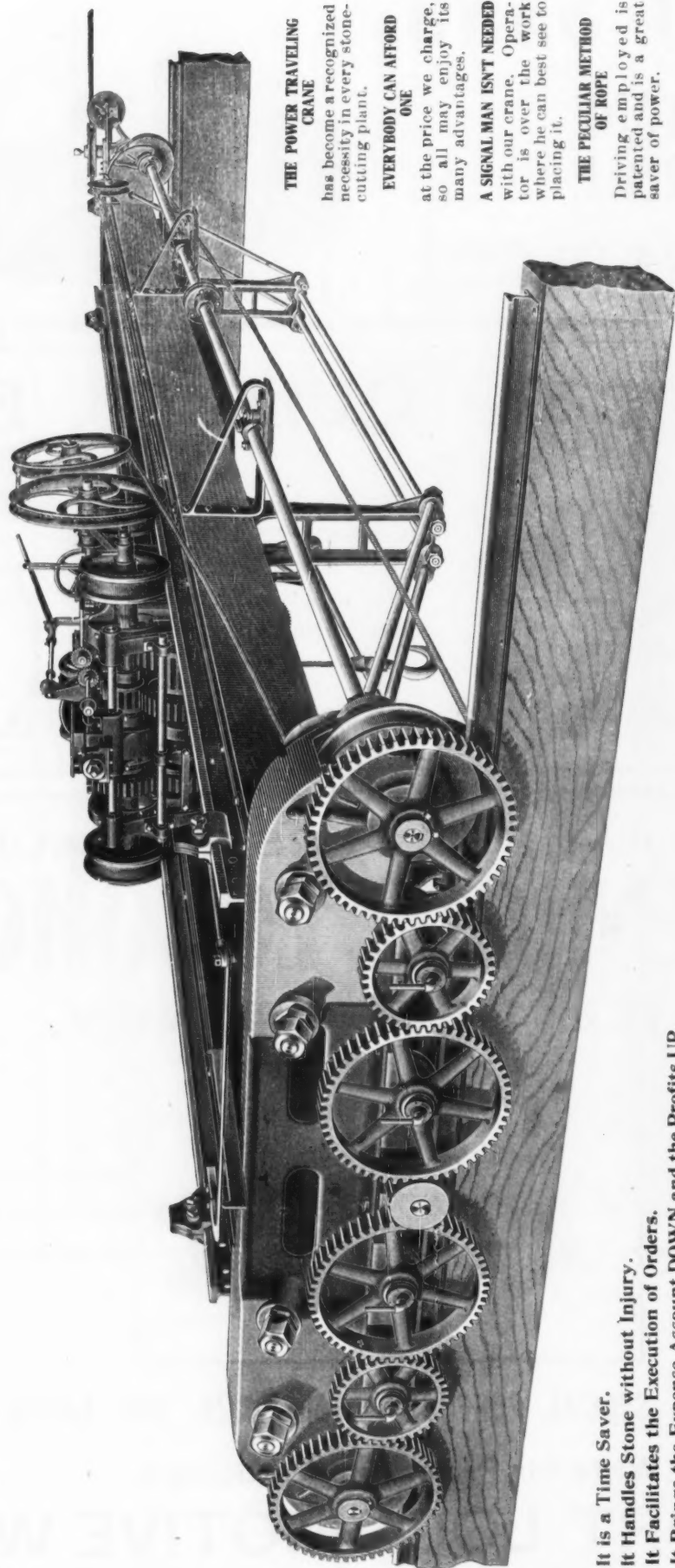
Write for Prices and Particulars.

DAVENPORT LOCOMOTIVE WORKS

DAVENPORT, IOWA.

Tell 'em you saw it in ROCK PRODUCTS.

SEE BARRE AND THEN BUY THE Anderson Patent Traveling Crane



It is a Time Saver.

It Handles Stone without Injury.

It Facilitates the Execution of Orders.

It Brings the Expense Account DOWN and the Profits UP.

THE POWER TRAVELING CRANE

has become a recognized necessity in every stone-cutting plant.

EVERYBODY CAN AFFORD ONE

at the price we charge, so all may enjoy its many advantages.

A SIGNAL MAN ISN'T NEEDED with our crane. Operator is over the work where he can best see to placing it.

THE PECULIAR METHOD OF ROPE

Driving employed is patented and is a great saver of power.

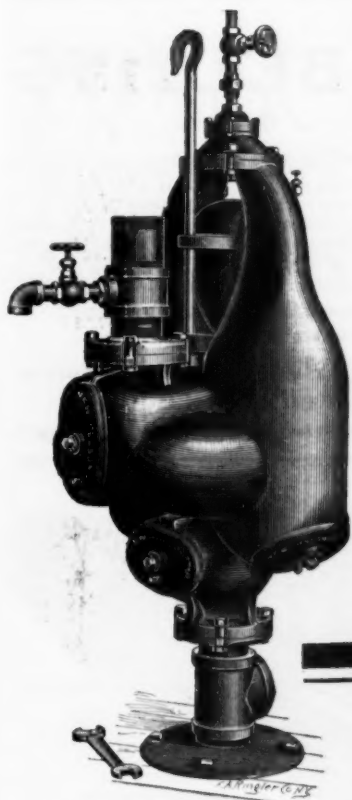
Barre and Montpelier have the best facilities in the world for handling and cutting stone, and it will pay any one interested to visit these places and inspect the many up-to-date plants, where our crane can be seen in operation. Some of its users are: In Barre, Jones Bros., Barclay Bros., Harrison Granite Co., Wells & Lamson, Canton Bros., Burke Bros., Marr & Gordon, Robins Bros.,

J. P. Corskie & Son, Geo. Straiton, Reinhalter Granite Co., North Barre Granite Co., Giudici Bros. & Co., and Pellegatta, Magnaghi & Galli; in Montpelier, Ryle & McCormick Co.,

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CATALOG WILL BE
MAILED ON REQUEST.

LANE MANUFACTURING COMPANY, Montpelier, Vt.



Why Not Install a Pulsometer Steam Pump?

Our Proposal



We will put in a PULSOMETER STEAM PUMP for any responsible quarryman who will state conditions under which pump is expected to operate in handling muddy, gritty water, and allow it to remain 30 days FOR TRIAL, the final acceptance of the pump to be conditional, that it must prove entirely satisfactory.

A PULSOMETER PUMP requires no oil or packing; has no stuffing box, no eccentrics, no levers, beams, pistons, or exposed mechanism. There is absolutely nothing to get out of order. Neither does it require a special foundation, as it will operate as well hung from a beam as when on a firm basis. Thus, in quarrying or rock excavating, where blasting is necessary and frequent, A PULSOMETER PUMP may be raised or lowered readily, easily and quickly, without interrupting its work.

No engine, belt, or machinery is needed to drive a PULSOMETER PUMP. A steam pipe connection with a boiler is all that is required.

A PULSOMETER STEAM PUMP will handle water containing a larger percentage of sand, grit, and thick mud than any other steam pump or other form of pumping machine. Catalogue free.

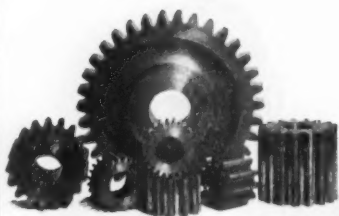
PULSOMETER STEAM PUMP CO.,

1708 WHITEHAUL BUILDING,

NEW YORK.

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**30
Days'
Trial**



A Duplicate Order

is a good indication that a product is satisfactory—we are receiving these orders right along from some of the largest Cement Manufacturers. Let us explain fully just what we guarantee Nuttall gears will do.

R. D. Nuttall Co.
500 Duquesne Way,
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LEVIATHAN BELTING

For Heavy Service and rough usage.

Designed and constructed to meet the requirements of heavy machinery—Stone and Cement Mills, Rock Crushers, etc.—and for handling rough materials of all kinds, wet or dry.

Endorsed by the highest scientific authorities for this class of work.

CATALOGUES, PRICES AND SAMPLES AT YOUR REQUEST.

LARGE STOCKS FOR IMMEDIATE SHIPMENT.

MAIN BELTING COMPANY, Manufacturers.

55-57 Market Street, CHICAGO, ILL.

PHILADELPHIA, 1218 Carpenter St.

BOSTON, 120 Pearl St.

BUFFALO, 40 Pearl St.

Grinding Crushing Pulverising

Accomplished with the utmost economy
in the modern machines built by

The J. R. ALSING CO.'S Mills.

For further information please
address us at our

—MAIN OFFICE—

136 Liberty St., **New York.**

Triumph Steel Belt Conveyor



MANUFACTURED BY

The C. O. BARTLETT & SNOW CO.
CLEVELAND, OHIO, U. S. A.

Patented

The Franklin Printing Co.,

Incorporated.

430 West Main Street,

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INQUIRIES RECEIVE PROMPT ATTENTION.

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Rooms 1529, 1530, 1531 and 1532, 150 Nassau St., NEW YORK, N. Y.

SLACK COOPERAGE STOCK.

CEMENT AND LIME STOCK

A SPECIALTY.

MILLS: New York, Ohio, Kentucky, Virginia, Pennsylvania, Michigan, Tennessee and North Carolina.

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POWER AND MINING MACHINERY CO.

BUILDERS OF Stamp Mill Machinery and Equipment

ALSO CONCENTRATION MILLS, SAMPLING WORKS,
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EQUIPMENT, ROCK CRUSHING PLANTS, GAS EN-
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PIPE AND SHEET METAL WORK OF ANY NATURE.

Estimates furnished promptly and the most careful attention given all orders, large or small.
The increased capacity of our now greatly enlarged works enables us to offer prompt deliveries.

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The "BLAKE" Rock and Ore CRUSHER

For Crushing all Kinds of Rock.

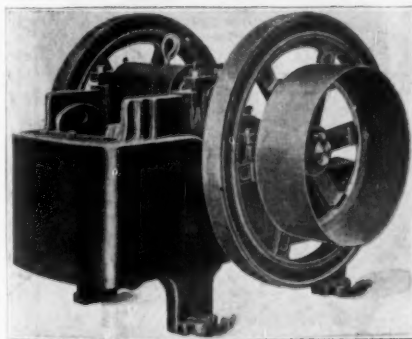
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MACHINE CO.,**
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Repair Parts Furnished.
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KOMINUTERS For Granulating TUBEMILLS For Pulverizing

Grinding SIXTY MILLION Bbls. of Cement Annually.

MOST Modern, Efficient, Economical.

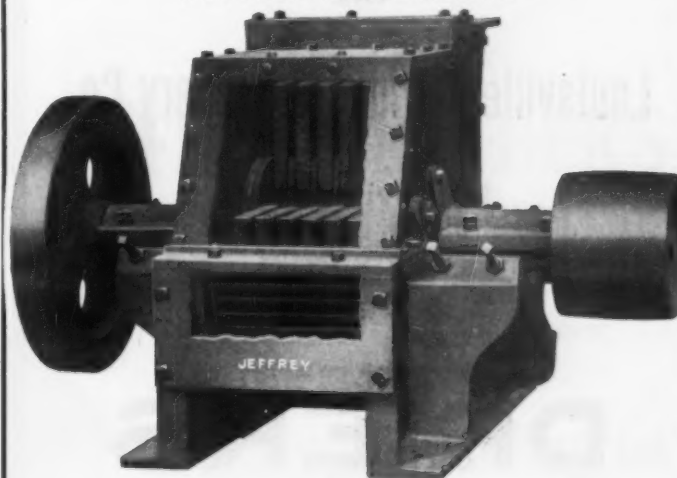
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ENGINEERS

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LIME STONE AND SAND ROCK, QUARTZ ORE AND FURNACE
SLAG AMONG OTHER MATERIALS.



SHOWING OUTER AND INNER WORKING PARTS.

SUPERIOR FEATURES.

Accessibility of working parts. Simplicity in changes of parts.
Substantial Pillow Blocks. Material partly crushed in suspension.

SEND FOR CATALOGUE 30 FOR DETAILS.

THE JEFFREY MFG. CO., Columbus, Ohio, U. S. A.

Elevating-Conveying-Power Transmitting Machinery.

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Mica Schist or Fire Stone Linings

—FOR—

Lime Kilns, Bessemer Converters and Cupolas, Etc.

Used in place of Fire Brick. It costs less and lasts longer. Any mason or person that can build a stone wall can lay it. It comes out of the ground in irregular shapes and sizes. It looks like building stone. It is easily broken by a hammer. The small pieces and crumbs can be mashed up and mixed with a little clay and water, which makes a Fire Mortar to lay the wall; therefore no loss—under strong heat it freezes into a solid wall.

We also grind this Mica Schist Rock, for making Fire Brick, Fire Sand, Furnace Bottom Sand, &c.

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THE
Louisville Drying Machinery Co.

Louisville, Ky.

Build

DRIERS

For all purposes.

THE
GEO. RAYMOND'S

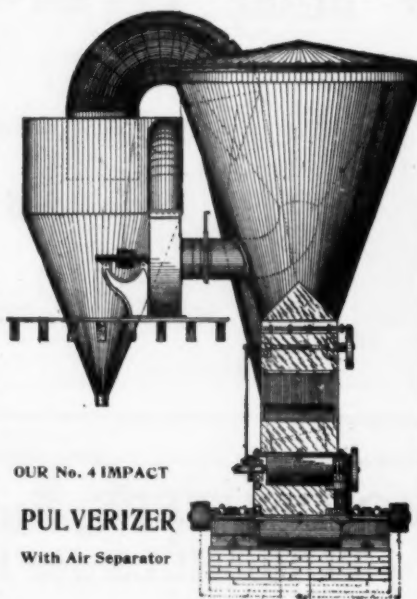
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**Centrifugal
Double Roller Mill,**

Self-balanced with Screen or
Air Separators.

Tube Mills with air separators and the Balance Ball Battery Mills will grind more and separate to any fineness desired, Cement, Clinker, Paint, Silica, Ore, Quartz, Limestone, etc., and take less power to run them than any other mills

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GEORGE RAYMOND MILL CO.

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Gypsum Machinery

A fine and complete line of Modern Machinery.

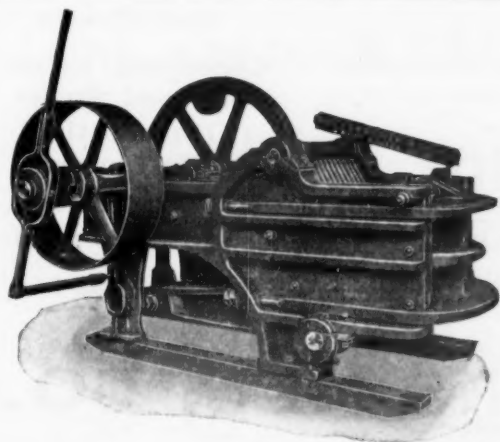
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We are now building the new Plymouth Mill at Fort Dodge, Iowa, the finest mill in the United States.

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DES MOINES, IOWA.



CRUSHERS

for soft and medium
hard rocks

GYP SUM MACHINERY.

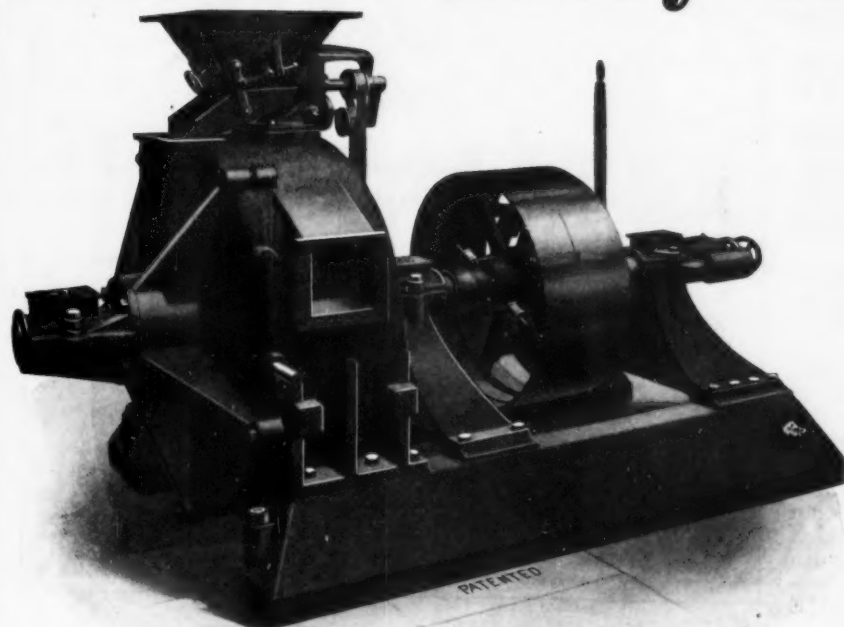
We make a complete line, including
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Plaster Mills and furnish all necessary
Machinery. طرق طرق طرق

BUTTERWORTH & LOWE,

17 Huron Street, GRAND RAPIDS, MICH.



Vertical Emery Grinding Mills



THE LARGEST FINE GRINDERS

GRIND TO 100 MESH
WITHOUT SCREENS

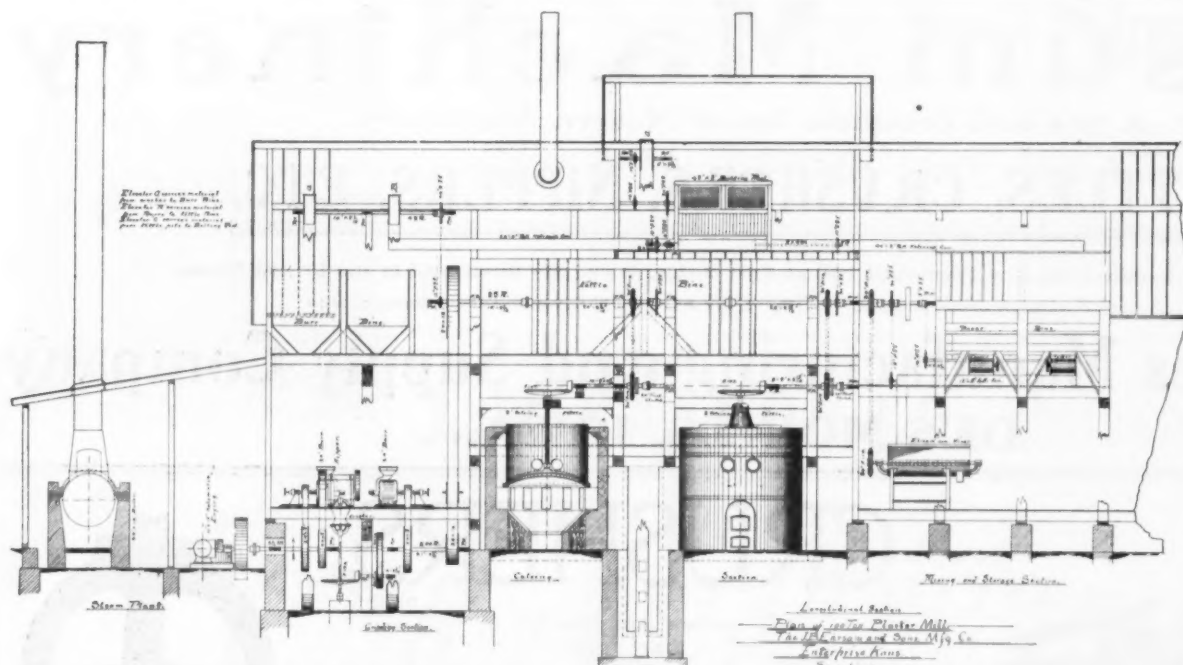
Capacity from 5 to 15 tons per hour

Send for 1905 Catalogue of

Crushing, Grinding and Screening Machinery

STURTEVANT MILL COMPANY, BOSTON, MASS.

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WE MANUFACTURE

Calcining Kettles
Jaw Crushers
Rotary Crushers
Bolting Reels
Shaking Screens
Turkey Emery Rock
Burr Mills
Plaster Mixers
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Conveying, Elevating
and Power
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Machinery.

We are prepared to submit plans and estimates for the complete equipment of wall plaster mills, and furnish all machinery required of our own manufacture and design. **Special Machinery to meet special requirements.** Twenty years experience in building and equipping Wall Plaster Mills. New Catalogue in press. Write for a copy. Address

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HYDRATED LIME

NEW PROCESS, NO GRINDING, NO SEPARATING, AUTOMATIC PROCESS from BEGINNING to END. ♡ ♡ ♡ ♡ ♡

NO HANDLING of MATERIAL after it is FED to MACHINE.

LUMP LIME as it comes from the KILNS, CONVERTED DIRECTLY into the POWDERED HYDRATE.

THE AIR being excluded during the process, the product contains NO AIR-SLAKED LIME.

ALL PARTICLES of STONE or FOREIGN MATTER are AUTOMATICALLY REJECTED, instead of being GROUND with the PRODUCT, and hence it contains no unslaked particles.

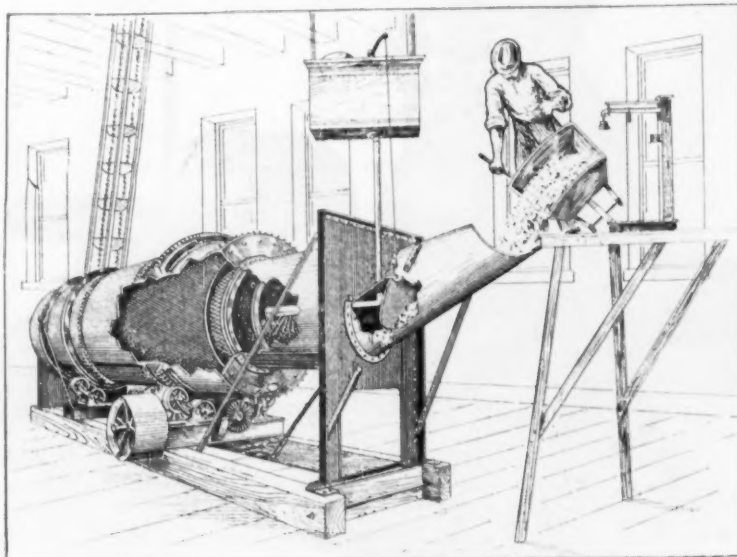
THE HYDRATE is ready for IMMEDIATE USE or SHIPMENT within a FEW MINUTES after the QUICK LIME enters the HYDRATOR. NO SEASONING in BINS necessary.

The COST of converting the QUICK LIME into HYDRATE is more than off-set by the GAIN in WEIGHT.

THE HYDRATOR embodying the PROCESS, will be sold outright—NO ROYALTIES.

YOU are CORDIALLY INVITED to EXAMINE this MACHINE in OPERATION, or if you will send not less than ten barrels of your lime to the Company, we will hydrate it for you free of charge and return you the product.

SEND NOW for ILLUSTRATED CATALOGUE giving full particulars.



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BALTIMORE, MD.

DELAWARE, OHIO.

Tell 'em you saw it in ROCK PRODUCTS.

WE SELL COOPERAGE

QUALITY HIGH. ATTRACTIVE PRICES

THAT'S THE DOUBLE IMPRESSION
WE AIM TO GIVE OUR CUSTOMERS.

WE WANT YOUR BUSINESS

SHIPMENTS MADE FROM

MILLS LOCATED IN THE

NORTH

EAST

SOUTH AND

WEST.

YOUR NEXT ORDER WITH
"BELL-IN-THE-BUSINESS 50 YEARS."

THE EDWIN BELL CO. PITTSBURG, PA.

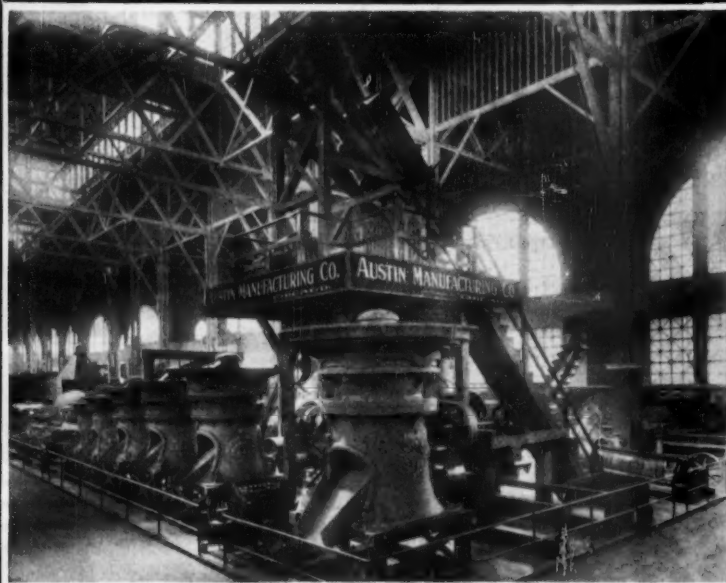
AUSTIN MACHINERY GIVEN HIGHEST AWARDS OVER ALL COMPETITORS

TWO GRAND PRIZES
THREE GOLD MEDALS

AT
WORLD'S FAIR
ST. LOUIS
1904

AUSTIN MANUFACTURING CO.
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The
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was the ONLY Gyratory Crusher
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thus officially stamping
THE AUSTIN GYRATORY CRUSHER
by the
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as the
**HIGHEST TYPE OF GYRATORY
CRUSHER IN THE WORLD**



The
**AUSTIN ROAD AND
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in a separate Exhibit
was awarded
A GRAND PRIZE
AND
A GOLD MEDAL
being the
**HIGHEST AWARDS EVER
GIVEN** to one Company for
Machinery of that Nature
in the
HISTORY OF WORLDS FAIRS

PAPER SAGKS



THE MOST CONVENIENT.
SATISFACTORY &
CHEAPEST PACKAGE FOR
**CEMENT,
PLASTER,
HYDRATED LIME**

WE SHALL BE PLEASED TO SEND
SAMPLES AND QUOTE PRICES.

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National System.

Lime Hydration

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Finlay Sand Dryer.

Clay Working Machinery.

National Brick Machinery Co.

431 Stock Exchange Bldg., Chicago.

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SOMETHING PRACTICAL.

The
Little Wonder Air
Hammer
Rock Drill



Will drill a perfect round hole by twisting machine back and forth one-fourth turn. Drills from 2 to 12 inches per minute according to hardness of rock. Strikes 2600 blows per minute.

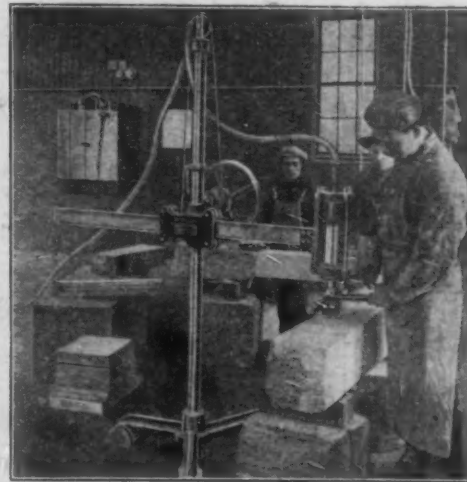
The air passes through the bit and keeps it cool as well as clearing all cuttings from hole being drilled.

— ADDRESS —
Hardsocg Wonder Drill Co.
OTTUMWA, IOWA.



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AND PRICES.

PATENT APPLIED FOR



"OLDHAM" SMALL SURFACER IN OPERATION.

Oldham Pneumatic Tools

FOR CARVING, LETTERING, ETC.

Surfacing Machines. Plug Drills.
COMPLETE PNEUMATIC PLANTS.

FOUR CARDINAL POINTS:

Simplicity Durability Economy Low Cost

TOOLS SENT ON APPROVAL.
WRITE FOR CATALOGUE AND PRICES.

GEORGE OLDHAM & SON

Manufacturers

FRANKFORD, PHILADELPHIA, U. S. A.

NEW ALBANY STONE-WORKING MACHINERY.

OUR SPECIALTIES

Stone Planers,	Screw Feed Gangs,
Wardwell Channelers.	Power Hoists,
Steam and Electric	Derrick Irons,
Traveling Cranes,	Wire Rip Saws,
Derrick Turners, Etc.	

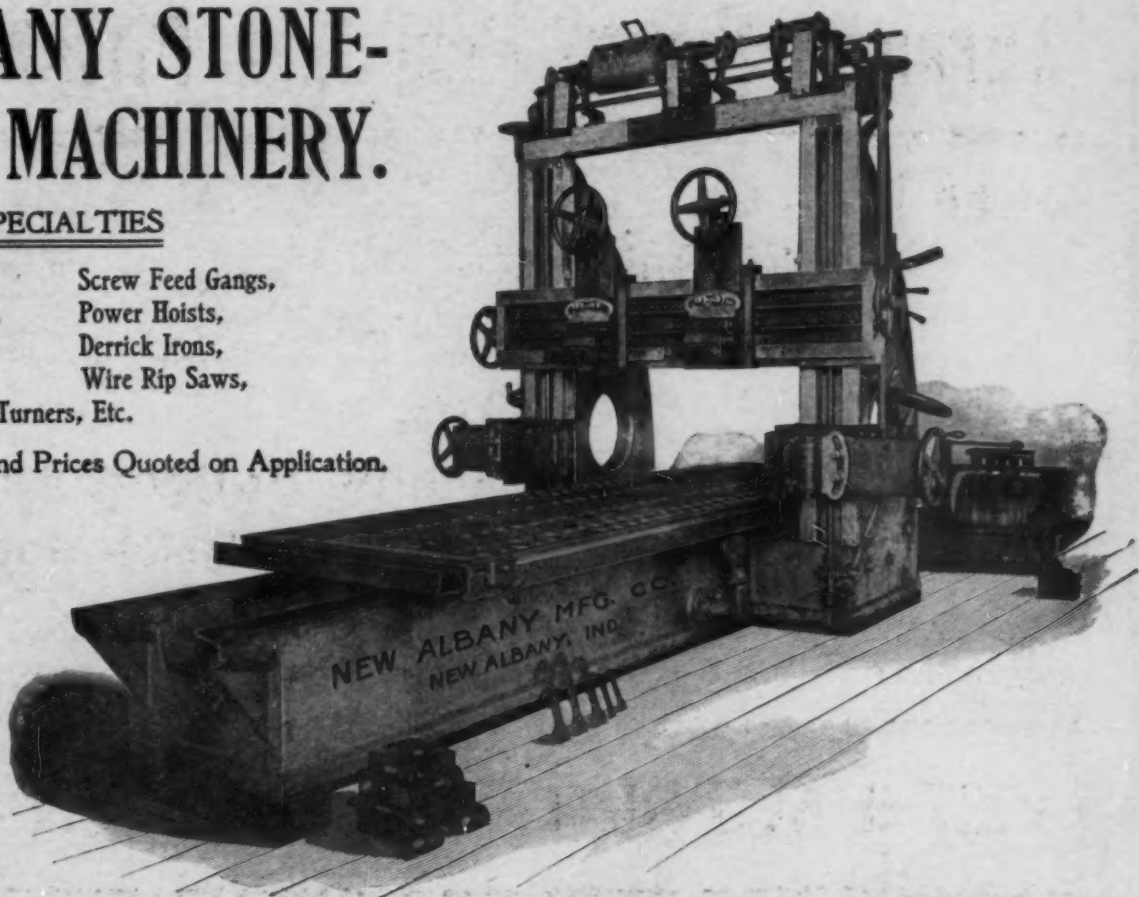
Circular Matter Furnished and Prices Quoted on Application.

Mills Erected Complete
Ready to Run.

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P.O. BOX 423.

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OUR 12 FT. X 4 FT. SINGLE PLATEN STONE PLANER.

We Make Them In Any Size.

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AUSTIN MACHINERY GIVEN HIGHEST AWARDS OVER ALL COMPETITORS

TWO GRAND PRIZES
THREE GOLD MEDALS

AT
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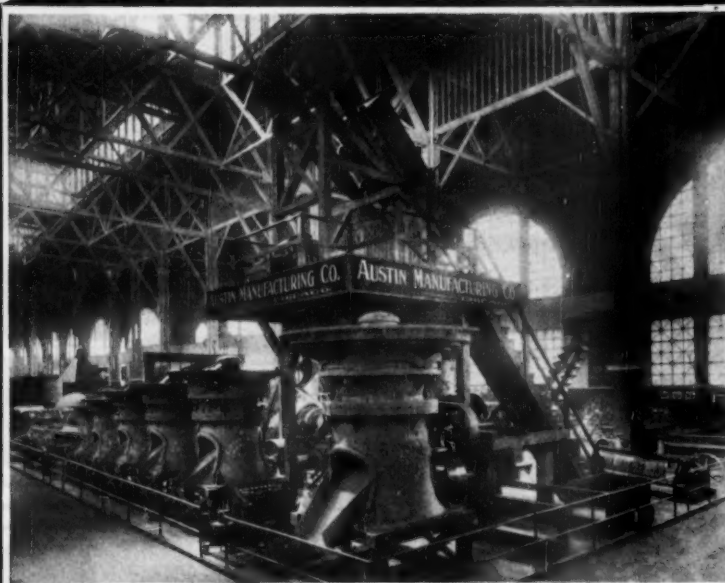
ST. LOUIS

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THE MOST CONVENIENT.
SATISFACTORY &
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CEMENT,
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WE SHALL BE PLEASED TO SEND
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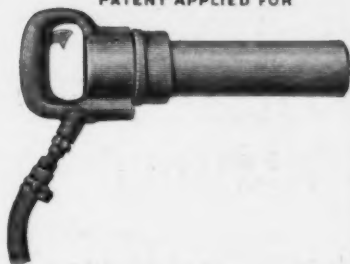
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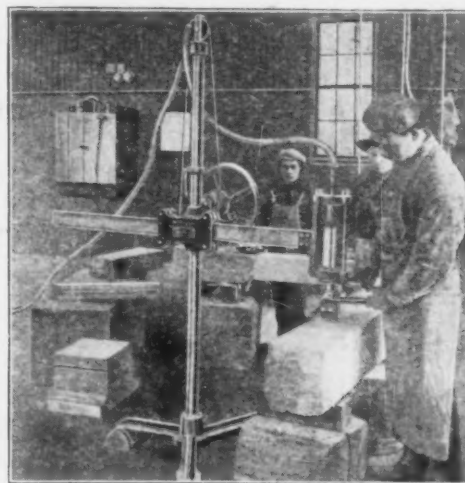
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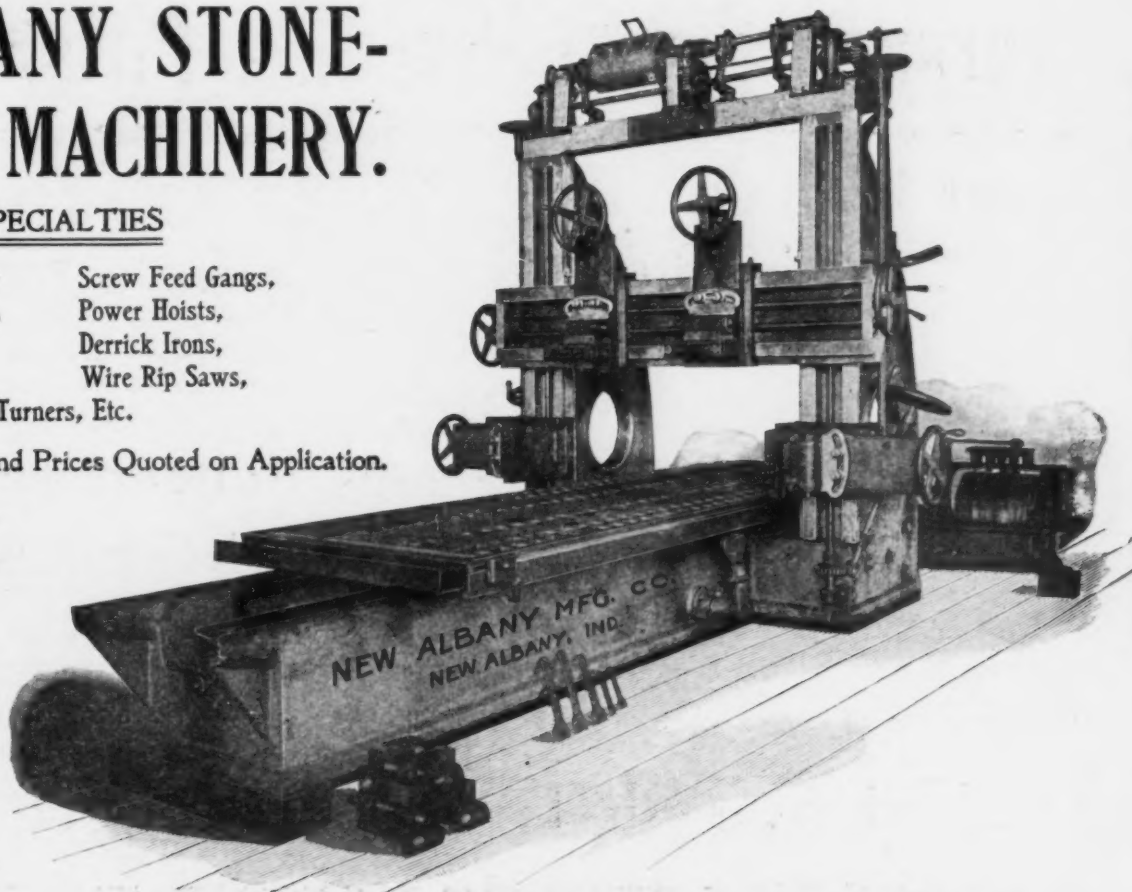
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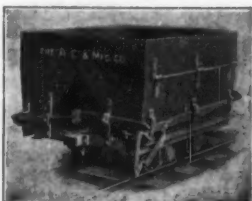
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